



Bering Straits Coastal Resource Service Area Board



*John Aulige with grandchildren Annesa Kauschak and Billy Cooper, Umiakleet
(Chuck Degnan photo)*

Volume 3 – Coastal Management Plan June 1991



Bering Straits Coastal Resource Service Area Board

Volume 3 – Coastal Management Plan
June 1991

Bering Straits Coastal Resource Service Area Coastal Management Program

The Coastal Management Program of the Bering Straits CRSA is comprised of three volumes and a User Guide:

- USER GUIDE:** Prepared in October 1987, this document provides an overview of coastal management, identifies the components of the Bering Straits CRSA Coastal Management Plan, and describes procedures for implementing the policies of the program.
- VOLUME 1:** **RESOURCE INVENTORY** - This volume, distributed in October 1984, provides an inventory of the resources of the region in both narrative and mapped format as an oversized atlas.
- VOLUME 2:** **RESOURCE ANALYSIS** - Distributed in October 1986, this volume examines the potential impacts of uses and activities on the resources of the region.
- VOLUME 3:** **COASTAL MANAGEMENT PLAN** - Originally distributed in October 1988 and reprinted in June 1991, this volume describes the development of the Coastal Management Program, identifies the coastal area boundary, and provides the policies and implementation procedures for the plan as approved by the Alaska Coastal Policy Council in July, 1987, and the federal Office of Ocean and Coastal Resource Management in December, 1989.

**Volume 3:
Coastal Management Plan
for the
Bering Straits Coastal Resource Service Area**

P.O. Box 10
Unalakleet, Alaska 99684
(907) 624-3062
(907) 624-3811 (FAX)
June 1991

This document was prepared and produced under the direction of the Bering Straits Coastal Resource Service Area (CRSA) Board.

Johnson Eningowuk, Chairman	Seat 1 - Shishmaref, Wales, Diomedea
Norman Menadelook, Sr.	Seat 2 - Teller, Brevig Mission, "Nome West"
Harry Boone	Seat 3 - Golovin, Solomon, White Mountain, "Nome East", Council
Jessie Anasogak	Seat 4 - Ellim, Koyuk, Shaktoonik
Frances Dignan, Secretary-Treasurer	Seat 5 - Unalakleet
Albert Washington	Seat 6 - St. Michael, Stebbins
Paul Rookok, Vice Chairman	Seat 7 - Savoonga, Gambell

PREPARATION TEAM

Chuck Dignan, Program Director
Alta Johnson, Administrative Assistant
Bryan MacLean, Program Director
Jerry Ivanoff, Program Coordinator
Lana Ivanoff, Administrative Assistant
Resource Analysis
Jon D. Isaacs & Associates
Finalize Graphics
Alaska Tab and Bind

The preparation of this document was financed in part by funds from the Alaska Coastal Management Program and the Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration, U.S. Department of Commerce. It was administered by the Alaska Department of Community and Regional Affairs, Division of Municipal and Regional Assistance.

TABLE OF CONTENTS

Volume 3: Bering Straits Coastal Management Plan

Title Page	i
Table of Contents	ii
List of Tables	viii
List of Maps	viii
Acknowledgements	ix
 <i>Chapter 1: Introduction and Organization</i>	
1.1 What is Coastal Management	1-1
1.2 Benefits to Local Residents	1-1
1.3 Effects on Activities and Landowners	1-2
1.4 Bering Straits Coastal Resource Service Area	1-2
1.5 Organization of the Plan	1-3
 <i>Chapter 2: Issues, Goals, and Objectives</i>	
2.1 Introduction	2-1
2.2 Definitions	2-1
2.3 Issues	2-1
2.3.1 Subsistence	2-1
2.3.2 Habitats	2-2
2.3.3 Reindeer Herding	2-3
2.3.4 Historic, Prehistoric, and Archaeological Resources	2-3
2.3.5 Geophysical Hazard Areas	2-4
2.3.6 Coastal Development	2-4
2.3.7 Mining and Mineral Processing	2-5
2.3.8 Energy Facilities	2-6
2.3.9 Alternative Energy Development	2-7

2.3.10	Transportation and Utilities	2-7
2.3.11	Recreation	2-8
2.3.12	Timber Harvesting and Processing	2-8
2.3.13	Fish and Seafood Processing	2-8

Chapter 3: Coastal Boundary

3.1	Introduction	3-1
3.2	Bering Straits CRSA Coastal Boundary	3-5
3.3	Justification for Inland Coastal Boundary	3-7
3.3.1	Topography, Drainage Basins, and Coastal Wetlands	3-8
3.3.2	Resources Dependent on Coastal Waters	3-9
3.3.2.1	Anadromous Fish Life Histories	3-10
3.3.2.2	Anadromous Fish Distribution and Abundance	3-12
3.3.2.3	Anadromous Fish Importance to Economy and Subsistence Lifestyle	3-14
3.3.3	Uses and Activities in the Coastal Area	3-15
3.3.4	Direct and Significant Impacts on Coastal Resources	3-17
3.4	Coastal Boundary Compatibility	3-22
3.5	Conclusion	3-23

Chapter 4: Subject Uses and Use Areas

4.1	Introduction	4-1
4.2	Subject Uses	4-1
4.3	Proper and Improper Uses	4-5
4.4	Land/Water Use Areas	4-6
4.4.1	General Use Areas	4-8
4.4.2	Important Use Areas	4-6
4.4.2.1	St. Lawrence Island, Adjacent Islands, and Rocks	4-10
4.4.2.2	Little Diomedea Island	4-11

4.4.2.3	Stebbins Wetlands	4-11
4.4.2.4	St. Michael Bay	4-12
4.4.2.5	Unalakleet River Drainage	4-14
4.4.2.6	Island Point to Beeson Slough, Including Cape Denbigh	4-15
4.4.2.7	Koyuk River Drainage	4-16
4.4.2.8	Kwiniuk, Tubutulik, and Kwik River Drainages	4-17
4.4.2.9	Golovin Bay/Lagoon and the Niukluk and Fish River Drainages	4-17
4.4.2.10	Rocky Point to Topkok Head	4-19
4.4.2.11	Safety Sound	4-20
4.4.2.12	Nome River Drainage	4-21
4.4.2.13	McCarthy's Marsh	4-22
4.4.2.14	Cape Woolley	4-22
4.4.2.15	Lost River Area	4-23
4.4.2.16	Port Clarence	4-23
4.4.2.17	Kuzitrin River Drainage and Associated Wetlands	4-24
4.4.2.18	Agiapuk River Drainage	4-25
4.4.2.19	Granley Harbor, Imuruk Basin, and Tuxuk Channel	4-25
4.4.2.20	Pilgrim River and Salmon Lake	4-25
4.4.2.21	Bravig Lagoon	4-27
4.4.2.22	Lopp Lagoon/Cape Prince of Wales	4-28
4.4.2.23	Ikpek Lagoon and Nukluk, Pinguk, Kaguerak, and Kugrupaga Drainages ..	4-28
4.4.2.24	Arctic River Drainage	4-29
4.4.2.25	Serpentine River Drainage	4-29
4.4.2.26	Alaska Maritime National Wildlife Refuges	4-30
4.4.2.27	Solomon River Drainage	4-31

Chapter 5: Policies

5.1	Introduction	5-1
5.2	Definitions	5-2
5.3	Policies	5-4

Chapter 6: Implementation

6.1	Introduction	6-1
6.2	Permits and Activities Subject to Consistency Determination	6-3
6.3	State and Federal Permit Review and Consistency Procedures	6-10
6.4	Bering Straits CRSA Board Involvement in Consistency Determinations	6-14
6.5	Local Involvement in CRSA Board Recommendations	6-16
6.6	Key CRSA Board Participants and Responsibility	6-16
6.7	Planning for Major Projects	6-17
6.8	Amendments and Revisions	6-22
6.9	Monitoring and Enforcement	6-22
6.10	Permit Pre-application Packet Requirements	6-23

Chapter 7: Areas Meriting Special Attention

7.1	Introduction	7-1
7.2	Criteria for AMSA Designation	7-2
7.3	Potential AMSA Candidates for Further Study	7-3
7.3.1	Stuart Island/Kikitarik	7-3
7.3.2	Portage Roadhouse	7-4
7.3.3	Golovin Bay	7-6
7.3.4	Rocky Point	7-6
7.3.5	Safety Sound	7-7
7.3.6	Cape Nome	7-8
7.3.7	Nome River	7-9

7.3.8	Pilgrim River.....	7-10
7.3.9	Port Clarence.....	7-11
7.3.10	Cape Prince of Wales.....	7-12
7.3.11	St. Lawrence Island.....	7-13
7.3.12	Solomon River.....	7-14

Chapter 8: Public Participation

8.1	Introduction.....	8-1
8.2	Public Education.....	8-1
8.3	Resource Information.....	8-6
8.4	Agency Meetings and Draft Products Review.....	8-6
8.5	Coastal Plan Approval.....	8-7

Chapter 9: Bibliography and Appendices

	Bibliography.....	9-1
Appendix A:	Waterfowl and Shorebird Distribution, Abundance, and Important Wetland Habitats in the Bering Straits CRSA.....	A-1
Appendix B:	Contacts for Affected Communities Within the Bering Straits CRSA.....	B-1
Appendix C:	Locations of Potential AMSAs Within the Bering Straits CRSA.....	C-1

LIST OF TABLES

Table 3-1	Peak Salmon Escapement in the Bering Straits CRSA, 1983	3-13
Table 3-2	Villages Surveyed During the Public Participation Survey	3-14
Table 3-3	Geographic Pattern of the Use of Subsistence Resources in the Norton Sound Region	3-14
Table 5-1	Distance to Fish-Bearing Waters for Varying Weights of Explosives	5-7
Table 5-2	Distance to Spawning Beds for Varying Weights of Explosives	5-7
Table 5-3	Maximum Allowable Screen Mesh Size and Water Velocities Through a Screened Intake for Small Water Withdrawals	5-8
Table 6-1	Permits and Approvals Requiring Individual Project Review	6-4
Table 6-2	Major Procedures Under the 40-Day Schedule	6-11
Table 6-3	Major Procedures Under the 60-Day Schedule	6-12
Table 8-1	Bering Straits CRSA Board Meetings and Public Meetings	8-2
Table 8-2	Bering Straits CRSA Board/Staff Presentations	8-5

LIST OF MAPS

Map 3-1	Coastal Area Boundary of the Bering Straits CRSA	3-3
Map 4-1	Important Use Areas in the Bering Straits CRSA	4-7

ACKNOWLEDGEMENTS

Many people are responsible for the development and production of this Concept-Approved draft of the Bering Straits Coastal Management Plan Resource Analysis. The elected members of the Bering Straits Coastal Resource Service Area (CRSA) Board provided overall direction for the CRSA staff. The CRSA Board wishes to acknowledge the attendance and participation of the many village members who came to Board meetings, public hearings, and community workshops to answer questions on coastal management issues and concerns and to provide invaluable input to the CRSA Board and staff. The Board also wishes to recognize and express their appreciation for the contributions and efforts of the many City, IRA/Traditional Council, and Village Corporation leaders and staff, and the Bering Straits School District principals and teachers that offered their hospitality to the Board and program staff; their professional contributions went far beyond normal job duties and working hours.

Along with the expression of special recognition and appreciation to elders of the Bering Straits Region, the CRSA Board wishes to recognize contributions of current and past Board members, including:

Robert R. (Bob) Blodgett
Morris Colley
John Cheemuk, Sr.

Andrew Daniels
Theodore Katcheak
Norbert Otten, Sr.

Dwight Millgrock, Sr.
Kenneth Shoogukwruk
Gene Wilkoy

The Board would also like to express their appreciation to the following staff, whose contributions and efforts helped make the Bering Straits Coastal Management Program a reality:

Chuck Dagnan
Bryan MacLean
Jerry Ivanoff
Helge Eakon
Diane Hemmes
John Levy
Rita Johnson
Lena Ivanoff
Carolyn Nashalook

Program Director
Program Director
Program Coordinator
Program Coordinator
Program Coordinator
Program Planner
Administrative Assistant
Administrative Assistant
Administrative Assistant

Additionally, the Board would like to thank the following organizations for their confidence and support to the Bering Straits Coastal Management Program: each of the Region's municipalities for contributing toward the initial 20 percent match required to initiate the program; the City of Unalakleet for assuming the burden of contract administration and support services, and for their nonreimbursable contributions of technical support; Kawerak Inc., for their efforts in establishing the program and continued input and support through the long years of program development; the Inupiat Circumpolar Conference for their support of the program; and the Bering Straits School District for early program support and grant facilities for public hearings and workshops, and to the staff of the newsletter "Strait Talk" for printing numerous press releases.

The Board is also indebted to those individuals who assisted in the translation and interpretation of the CRSA slide show: Allen Soosuk, Eleanor Oozeva, and Jean Ferris. Finally, our gratitude to Chuck Dagnan; Mary Alexander and Peggy Yokum from the Kawerak Eskimo Heritage Program; Laura Kosell from Bering Straits Native Corporation; Dick Mylius from the Alaska Department of Natural Resources; Wayne Marshall from the Alaska Department of Community and Regional Affairs; the National Park Service; and the Alaska Environmental Information and Data Center for providing use of the photographs presented in Volumes 1, 2, and 3 of the Bering Straits CRSA Coastal Management Program.

From time immortal we the eskimos get most of our food from the sea, seals, walrus, whales, fish and birds. Anything that we get from the sea... White people get their food mostly from the land. They grow crops, raise animals and birds. The sea is like a garden to us. Our way of getting food is far different from the white people. We both have difficulties: poor hunting for us is caused by weather and bad ice conditions, just as drought, frost, etc. affect farming.

— *Myra Sepilu, Savoonga*

Chapter 1: Introduction and Organization

1.1 WHAT IS COASTAL MANAGEMENT

Coastal Management is a joint planning effort of local, state and federal governments and the private sector to manage coastal resources and promote their wise and balanced use. For the people of rural Alaska, it is an important opportunity for meaningful participation in federal and state decisions that affect their lives. Coastal management works by requiring certain types of activities that need federal or state permits or approvals to be consistent with approved local district coastal management programs.

In 1972, recognizing the need for sound management and conservation of the nation's coastal resources, Congress passed the Coastal Zone Management Act (CZMA). The CZMA established a national program to for the management, beneficial use, protection, and development of coastal land and water resources. The federal program encouraged states to develop their own coastal management programs in response to the need for coastal resource planning. Federal agencies are directed to conduct or support activities directly affecting the coastal zone in a manner that is consistent, to the maximum extent practicable, with approved state coastal management programs.

The State of Alaska passed the Alaska Coastal Management Act (ACMA) in 1977, establishing a state coastal management program based on a partnership of shared state and local management responsibility. It provides for the development of local district coastal management programs. The ACMA created the Alaska Coastal Policy Council, which includes nine members from local government and seven representatives from State agencies. The standards and guidelines adopted by the Council serve as both statewide minimum requirements for preparing district programs and for determining the consistency of projects in areas where no local programs have been prepared and approved.

District coastal management programs are developed by local residents and reflect the issues, resources, and policy guidance unique to a specific district. These programs are prepared by municipalities, or, in the case of most of rural Alaska, by popularly elected Coastal Resource Service Area Boards. The district programs prepared are subject to review by the public and state and federal agencies, and approval by the local coastal board, the Coastal Policy Council, and the federal government.

1.2 BENEFITS TO LOCAL RESIDENTS

Coastal management does not provide complete local control over activities that occur in a coastal district. However, in the portion of rural Alaska outside of boroughs without other planning powers, coastal management is an important step forward in exercising the concept of local control. It takes local residents from the role of making public comments on an activity, where they have no voice in the decision, to actually participating in decision making.

By forming a coastal resource service area and participating in coastal management, local residents receive the following benefits:

1. Through their approved coastal plan, it allows the local residents to develop the "rules" (the plan's policies) with which federal, State, and local activities must be consistent.
2. Coastal management provides local residents with a strong and legally defined role in the consistency determination process; their input cannot be ignored.
3. An approved plan is legally binding on federal, state, local, and private activities that are subject to coastal management; such activities must be consistent with an approved local plan.

1.3 EFFECTS ON ACTIVITIES AND LANDOWNERS

Coastal management only affects activities that already require a state or federal permit or approval. Because the coastal consistency process is tied to the requirements of Permit Reform legislation, it cannot add any additional time to the permit decision-making process. In many cases, coastal management increases communication among parties affected by a proposed activity; local involvement results in a decision that is less likely to be challenged and result in extra delay.

Coastal management applies to activities on federal, state, municipal, and private lands located within the coastal boundaries. Activities on lands conveyed through the Alaska Native Claims Settlement Act of 1971, including selection by village and regional corporations and former reserve lands, are subject to coastal management. Native Allotments and individual restricted lots within Trustee Townsites are considered Bureau of Indian Affairs trust lands and are excluded unless activities are likely to have significant effects on adjacent coastal resources.

1.4 BERING STRAITS COASTAL RESOURCE SERVICE AREA

Outside boroughs and other municipalities with planning powers, district coastal management programs are prepared by Coastal Resource Service Areas (CRSA). These areas have been designated in the Alaska Coastal Management Program, using the boundaries of Rural Education Attendance Areas. A CRSA is formed when the residents of a potential CRSA hold an election and vote to form a CRSA; the CRSA Board is elected by the residents shortly thereafter. Each member represents specific communities within the CRSA, and board seats are up for election for regular three year intervals. It is the responsibility of the CRSA Board to provide the overall direction for the development of the district coastal management program.

In 1980, the residents of the Bering Straits Region voted to form the Bering Straits CRSA. The CRSA contains 19 communities (15 incorporated, 2 unincorporated, and 2 displaced). Shortly after formation of the CRSA, a seven member Board was elected, with each seat representing the following communities:

Seat 1:	Shishmaref, Wales, and Diomed Island
Seat 2:	Teller, Brevig Mission, and "Nome West"
Seat 3:	White Mountain, Golovin, Solomon, Council and "Nome East"
Seat 4:	Elim, Koyuk, and Shaktodik
Seat 5:	Unalakleet
Seat 6:	St. Michael and Stebbins
Seat 7:	Gambell and Savoonga

Based on population changes recorded in the 1990 census data, the Alaska Department of Community and Regional Affairs anticipates that the Bering Straits CRSA Board representation needs to be adjusted to provide equal representation for all residents in the region. The revised representation for the seven CRSA Board seats is anticipated for the 1992 general election.

The City of Unalakleet provided project administration, office space and other program support to the two CRSA staff members, the Program Director and Administrative Assistant. Development of the Coastal Management Program has relied on input from the villages of the region, including community councils, IRA/Traditional councils, village corporations, and the region's native non-profit and profit corporations. The continuing involvement of these groups is crucial to the successful implementation of the Bering Straits Coastal Management Plan. For more information on the role of the CRSA Board, staff, and local residents and organizations, see Chapter 6.

1.5 ORGANIZATION OF THE PLAN

The Bering Straits CRSA Coastal Management Plan was approved by the Alaska Coastal Policy Council on July 7, 1987, and the federal Office of Ocean and Coastal Resource Management on December 1, 1989. The plan reflects the Standards and Guidelines of the Alaska Coastal Management Program, and emphasizes the values and concerns of the people of the Bering Straits Region. The coastal management program consists of three volumes: the Resource Inventory (Volume 1), the Resource Analysis (Volume 2), and the Coastal Management Plan (Volume 3). A User Guide distributed in 1987 provided a program overview, described the coastal management program components, and identified plan implementation strategies. This volume, the Coastal Management Plan, contains the following chapters:

Chapter 2.0, Issues, Goals and Objectives presents the needs and concerns of the people of the coastal area, and the program goals and objectives that address them.

Chapter 3.0, Coastal Boundary describes the area covered by the coastal management plan and how it was determined.

Chapter 4.0, Subject Uses and Use Areas lists the uses and activities subject to the coastal management plan and uses areas important to the CRSA.

Chapter 5.0, Policies are the "enforceable" rules of the coastal management plan, and are used to determine the consistency of uses and activities with the plan.

Chapter 6.0, Implementation describes how the State of Alaska and the CRSA Board work together in the consistency determination process, including the role of local communities and landowners.

Chapter 7.0, Areas Meriting Special Attention describes potential AMSA candidates for further study.

Chapter 8.0, Public Participation outlines the program for public input used in the development of the plan.

Chapter 9.0, Bibliography and Appendices

For further information on the Bering Straits CRSA Coastal Management Program contact:

Program Director
Bering Straits CRSA
P.O. Box 10
Unalakleet, Alaska 99684
(907) 624-3062
(907) 624-3811 (FAX)

Chapter 2: Issues, Goals, and Objectives

2.1 INTRODUCTION

The issues, goals, and objectives in this chapter identify the Bering Straits Coastal Management Plan as a locally inspired and prepared program. They provide the foundation for the plan as they reflect the attitudes and interests of peoples' dependence on the coast and its resources. Each of the issues (areas of concern or conflicting use) is followed by goals (ideals, desired ends) and objectives (methods of achieving these ideals). Upon these, the district's enforceable policies are based.

The importance of the goals and objectives lies in serving both as aids in identifying the intent of a particular policy as well as portraying regional, state, and national concerns.

The CRSA Board's primary concern is land and water use. Economic, social, and cultural issues are also addressed in this chapter. The use and management of land and resources in the Bering Straits Region cannot be separated from the mix of Inuit and Western values and economic questions that bear so heavily on resource management.

Sources for the issues, goals, and objectives included a public attitude survey conducted in the region from April through June 1983; village input from public meetings; the coastal management resource inventory (Volume 1) and Resource Analysis (Volume 2); CRSA Board discussions; and comments from regional and local landowners and state and federal agencies.

2.2 DEFINITIONS

Traditional Inuit Way of Life:

"Inuit" means the native people of the Arctic as defined by the Arctic Policy Act of 1984. Traditional Inuit ways of life refer to the land and water use values, both written and oral, of the Inupiaq, St. Lawrence Island Yupik, and Central Yupik peoples of the Bering Straits Region.

Issues:

Subjects or matters of local and regional concern to people in the Bering Straits Region and often of national concern.

Goal:

A end state, condition, or situation toward which residents of the region want to direct uses of resources.

Objectives:

Actions which are taken in order to achieve a goal or to bring a goal closer to reality.

2.3 ISSUES

2.3.1 Subsistence

Subsistence use is the customary, and traditional use of natural resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles; and for barter or sharing among subsistence users. Subsistence is the principal land use and predominant way of life among residents of the Bering Straits Region. Food gathering activities occur in a year-round cycle geared to the principal seasons of species occurrences, constrained at times by climate, terrain, and sea conditions.

Goal A: Ensure the availability of access to subsistence resources and use areas for the continuation of subsistence as the predominant way of life for the region's people.

Objective 1. Identify subsistence hunting, fishing, and foraging areas and determine sensitivity to potential adverse impacts from conflicting uses.

Objective 2. Coordinate competing land and water uses in a manner that maintains and/or enhances the productivity of important subsistence resources and use areas.

Objective 3. Maintain and/or enhance the productivity of important subsistence resources and use areas, including the following:

- sensitive denning, calving, staging molting, feeding, nesting, spawning and overwintering habitats, and migration routes of important subsistence resources; and
- vegetative communities and habitats important to subsistence users.

Objective 4. Identify and develop mitigation measures that can be used to compensate subsistence users for losses caused by resource development activities.

Objective 5. Facilitate maintenance and enhancement of public access to lands traditionally used by residents for subsistence purposes.

Goal B: Recognize subsistence as the primary land use of residents of the Bering Straits Region.

Objective 1. Maintain or enhance the viability of the region's subsistence economy and ensure opportunities for resident participation in subsistence activities.

Objective 2. Accommodate subsistence activities in regional and specific resource development plans.

2.3.2 Habitats

The Bering Straits Region provides important habitat to bird species which nest in wetlands, uplands, and on rocky cliffs; marine mammals which migrate through the region and haul-out on rocky beaches; and both large and small land mammals which inhabit coastal and upland areas. Marine and anadromous fish utilize the marine and freshwater habitats of the region. Protection of fish and wildlife habitat is critical, both for the healthy propagation of the myriad species and to ensure continuation of the subsistence way of life.

Goal A: Encourage state, federal, and other landowners to manage fish and wildlife populations to maintain or enhance current levels and meet the subsistence and commercial needs of the region's people.

Objective 1. Identify and inventory important fish and wildlife habitats, particularly those which are sensitive to disturbance, limited in availability, or critical to a species' life history.

Objective 2. Work with the Department of Natural Resources in identifying land classified as wildlife habitat in accordance with 11 AAC 55.230. Land classified as wildlife habitat is land which is primarily for:

- (1) fish and wildlife resource production, whether existing or through habitat manipulation, to supply sufficient numbers or diversity of species to support commercial, recreational, or traditional uses on an optimum sustained yield basis; or
- (2) maintenance of a unique or rare assemblage of a single or multiple species of regional, state, or national significance.

Goal B: Ensure that development is conducted in a manner compatible with sensitive fish and wildlife populations and habitats.

- Objective 1. Avoid adverse impacts to marine, anadromous and resident fish populations by protecting important spawning, feeding, overwintering, and migration areas.
- Objective 2. Maintain or enhance large mammal populations by protecting important wintering grounds, calving grounds, denning areas, and migration routes.
- Objective 3. Maintain or enhance marine mammal populations by protecting important pupping, haulout, feeding, and wintering areas.
- Objective 4. Maintain or enhance waterfowl populations by protecting wetland areas important for spring and fall staging, nesting, molting and feeding.
- Objective 5. Protect wetlands which are important to the integrity and productivity of aquatic systems by maintaining water quality and ambient seasonal flows.
- Objective 6. Maintain or enhance small animal and bird populations by protecting denning, feeding, nesting, and wintering areas.
- Objective 7. Maintain or enhance endangered species populations by avoiding development in areas or habitats which are critical to the existence of an endangered species.

2.3.3 Reindeer Herding

Reindeer are a major agricultural resource in northwest Alaska. They are the only large domesticated animal on the Seward Peninsula which currently lives year-round on the tundra. Reindeer herding provides residents with income, employment, a source of food, and clothing and craft material.

Goal A: Maintain or enhance reindeer herds by protecting important use areas, such as winter grazing and tawning areas.

- Objective 1. Establish, recognize, and facilitate protection of all lands stipulated as primary reindeer grazing lands in ANCSA and ANILCA.
- Objective 2. Identify and maintain or enhance use of all reindeer tawning areas.
- Objective 3. Identify and develop mitigative measures that can be used to compensate reindeer herders for losses caused by resource development activities.

Goal B: Facilitate improvement of the economic viability of the reindeer industry in the region.

- Objective 1. Encourage the State of Alaska to develop markets for reindeer products and by-products.
- Objective 2. Encourage the State of Alaska to research, and as appropriate, promote production of an alternative feed for reindeer in the Bering Straits Region.
- Objective 3. Encourage the State of Alaska to maintain the health of reindeer herds by combating reindeer pests and parasites.

2.3.4 Historic, Prehistoric, and Archaeological Resources

The Bering Straits Region holds tremendous historical importance. It was here that the ancestors of the native inhabitants of North America first entered the continent from Asia; some settled in the region. Thousands of years later, early European and American traders, whalers, missionaries, and prospectors also settled in the region. Archaeological, historic, and cultural sites are important links between the region's people and their past. These coastal resources should be identified to protect their importance. The entire Bering Straits Region is considered to be culturally sensitive.

Goal A: Preserve and foster respect for the history of the early Inuit, European, and American peoples of the Bering Straits Region.

- Objective 1. Ensure the protection of all prehistoric, historic, and cultural sites.
- Objective 2. Facilitate the protection of the Inuit culture by instilling respect for ancestral sites.
- Objective 3. Ensure that developers identify potential and existing prehistoric, historic, and cultural sites to the appropriate authorities prior to the initiation of development activities.
- Objective 4. Ensure that sites of prehistoric, historic, or cultural significance which are encountered during development activities are properly surveyed, protected, preserved, and evaluated as required by state and federal regulations.

2.3.5 Geophysical Hazard Areas

Bering Straits coastal communities are vulnerable to flooding and erosion and also suffer from unstable ground conditions, such as melting permafrost and landslides. Activities in coastal waters are susceptible to damage from storm conditions and surges, and from sea ice conditions. Damage from some natural hazards can be triggered or worsened by man's disturbance of natural conditions or processes. Identification of hazard-prone areas is essential to planning for safe development.

Goal A: Ensure that development in the Bering Straits Region respects and accommodates the natural forces of the region.

- Objective 1. Identify and analyze information from written and oral sources relating to weather patterns, ice conditions, and landforms in the region.
- Objective 2. Ensure that development in hazardous areas adopts adequate mitigative measures and safeguards to address geophysical hazard concerns. Where there are no feasible and prudent alternatives, adequate mitigating measures to minimize impacts to health and safety, coastal habitats and other resources must be adopted.
- Objective 3. Discourage development in areas designated as active floodplains, high water channels and unstable slopes and shorelines.
- Objective 4. Ensure that all offshore exploration, development, and production that has the potential to significantly affect coastal land and water resources within the Bering Straits Coastal Resource Service area is conducted using technology that will guarantee the ability of man-made structures to withstand naturally-generated forces and thereby protect the viability of biological resources.

2.3.6 Coastal Development

Standards for coastal development are intended to provide a balance between subsistence activities, environmental protection and the need for development along the coast. State standards require that districts and state agencies, when planning for and approving development in coastal areas, give first priority to water-dependent uses, second priority to water-related uses, and then priority to uses that are neither water-dependent nor water-related and for which there is not a reasonable inland alternative.

Goal A: Provide guidance and direction for the siting, design and management of coastal development facilities and activities in a manner which minimizes environmental and social effects, benefits local residents, and satisfies industrial requirements.

- Objective 1. Establish a process that integrates local input from traditional and city councils, and village and regional Native Corporations into planning for the siting, design, and management of industrial facilities and activities.

- Objective 2.** Ensure that coastal development complies with municipal, state, federal, private landowner and Bering Straits CRSA air, water, noise, and land regulations and policies.
- Objective 3.** Ensure that site preparation activities are scheduled at times when the impacts on critical fish and wildlife life history stages will be minimal.
- Objective 4.** Avoid excavation in wetlands except for essential public purposes (e.g., electrical lines, pipelines, and waterlines) that cannot be rerouted.
- Objective 5.** Ensure that landowner, municipal, and government agency development plans include procedures for maintaining natural water drainage systems and for preventing permafrost degradation.
- Objective 6.** Notify communities in the region, well in advance, of development activities that bring significant workers into the community, and provide advance information on physical and social impacts to the community so that adequate planning and mitigation measures for infrastructural and service needs may be initiated.
- Objective 7.** Develop a process to coordinate capital improvement project planning within the CRSA boundaries to promote efficiency, reduce disruption, and best utilize the local labor force.
- Objective 8.** Encourage communities in the region to prepare and adopt comprehensive plans compatible with the Bering Straits Coastal Management Plan.

Goal B: Provide guidance and direction for coastal development which is compatible with traditional Inuit ways of life.

- Objective 1.** Develop close working relationships between development entities and IRA/traditional councils, city councils, and Native corporations for mutually beneficial development, site location, and protection of subsistence and cultural resources.
- Objective 2.** Ensure that decision makers consult with affected landowners and obtain approval of affected communities prior to undertaking major industrial or developmental projects.
- Objective 3.** Recognize that subsistence and cash economies are different but equally important, and must be balanced during coastal development.

2.3.7 Mining and Mineral Processing

Since the turn of the century, mineral resources of the Bering Straits Region have been exploited by people attracted to the region for its mineral wealth. This development led to the founding of new communities and transportation routes. Interest in mineral development continues today, as evidenced in the increased number of mining projects in the region. Mineral development, if accomplished with local participation, has the potential to create jobs and provide economic benefits to local residents.

Mining and mineral processing activity has traditionally focused on locatable minerals (gold, nickel, and copper) and leasable minerals (coal, sand, and gravel). Specific activities include excavation; dredging; the use of hydraulic equipment or explosives; sorting, milling, and crushing; and waste disposal. Primary disturbances caused by extraction, transportation, and processing of minerals could greatly affect coastal resources. Secondary impacts on the environment could result from location, design, or operation of related facilities.

Goal A: Provide guidance and direction for the exploration and extraction of mineral resources, in accordance with state and national interests and in a manner which does not adversely impact traditional Inuit ways of life or the environment.

- Objective 1.** Establish a process that integrates local input from traditional and city councils, and village and regional Native Corporations into planning for the siting, design, and management of industrial facilities and activities.

- Objective 2. Identify potential adverse impacts of mineral development and associated transportation facilities and ensure adoption of mitigating measures which will minimize these impacts.
- Objective 3. Ensure that stipulations designed to minimize adverse impacts from mineral extraction and processing activities are incorporated into leases and permits and are enforced.

Goal B: Maximize benefits to Bering Straits residents from mineral resource development.

- Objective 1. Work with the mineral industry to train and hire Bering Straits residents and improve employment opportunities for residents in the resource extraction industries.
- Objective 2. Develop ways for the mineral industry and state and federal governments to assist with costs of developing and maintaining infrastructure generated by mineral resource exploration and development.
- Objective 3. Work with the mineral industry to provide support for local and regional social service programs such as community facilities, scholarships, and cultural events.

2.3.8 Energy Facilities

There is considerable federal and state government interest in developing potential Bering Sea petroleum resources. A commercial find would contribute to reducing national reliance on energy imports. Development of regional resources would also provide the State of Alaska with increased revenue, and if accomplished with local participation, could provide economic benefits to local residents. Residents of the region are primarily concerned with the potential impacts of oil development on the environment and subsistence resource availability and access.

Goal A: Provide guidance and direction for present and potential development of oil and gas, in accordance with state and national interests and in a manner which does not adversely impact traditional Inuit ways of life or the environment.

- Objective 1. Establish a process that integrates local input from traditional and city councils, and village and regional Native Corporations into planning for the siting, design, and management of industrial facilities and activities.
- Objective 2. Ensure that exploration and extraction activities balance local interests, interests of state concern, and national interests.
- Objective 3. Identify potential adverse impacts of oil and gas development and mitigation measures which would minimize these impacts.
- Objective 4. Identify areas in the region which are sensitive to the effects of oil and gas exploration and development activities.
- Objective 5. Avoid siting of oil and gas facilities in sensitive fish and wildlife habitats, subsistence use areas, and geophysically unstable areas. Where no feasible and prudent alternative exists, ensure adoption of adequate mitigation measures and safeguards.
- Objective 6. Ensure that stipulations designed to minimize adverse impacts from oil and gas activities are incorporated into leases and permits and are enforced.

Goal B: Maximize benefits to Bering Straits residents from oil and gas development.

- Objective 1. Work with the oil and gas industry to train and hire Bering Straits residents and improve employment opportunities for residents in the petroleum industry.
- Objective 2. Develop ways for the oil and gas industry and state and federal governments to assist with costs of developing and maintaining infrastructure generated by oil and gas exploration and development.
- Objective 3. Work with the oil and gas industry to provide support for local and regional social service programs such as community facilities, scholarships, and cultural events.

- Objective 4.** Facilitate development of opportunities for providing Bering Straits Region with reasonably priced intra-regional supplies of fuel oil and gas.

2.3.9 Alternative Energy Development

Bering Straits residents rely on petroleum products for heating, cooking, and for fuel for their vehicles. To reduce both the demand on petroleum as a single energy source and the high price villagers must pay for fuel, conservation and alternative energy sources must be more fully utilized. Appropriate alternatives identified for the region include wind, geothermal (hot springs), coal, and in one village, hydroelectric power.

Goal A: Reduce village dependence on high cost petroleum products.

Objective 1. Develop locally available energy resources for local consumption, where feasible and environmentally sound.

Objective 2. Facilitate development of conservation programs that promote efficient use of energy.

Objective 3. Encourage development of appropriate alternative energy facilities and programs.

Goal B: Establish a process that integrates local involvement in the planning, designing, and siting of alternative energy facilities.

Objective 1. Ensure that development of alternative energy projects includes consultation with and approval by affected landowners and communities.

Goal C: Provide guidance and direction for development of alternative energy resources in a manner which does not adversely impact traditional Inuit ways of life or the environment.

Objective 1. Identify potential adverse impacts of alternative energy development and mitigative measures which would minimize these impacts.

Objective 2. Avoid siting of alternative energy facilities in sensitive fish and wildlife habitats, subsistence use areas, and geophysically hazardous areas. Where no feasible and prudent alternatives exist, ensure adoption of adequate mitigation measures and safeguards.

2.3.10 Transportation and Utilities

The most common year-round method of transportation in the region is the airplane. There are few roads, and like the sea, they are open only part of the year. Most recreational and subsistence activity occurs off-road and depending on the time of year, requires a boat, all-terrain vehicle, and/or snowmachines. Transportation systems and utility corridors and facilities have both direct and indirect impacts on coastal ecosystems. Direct impacts are most often caused by actual construction and maintenance of projects. The main indirect impacts of transportation are development of utility corridors and facilities which open previously uninhabited country to use and development.

Goal A: Upgrade existing transportation facilities to improve safety, lower transportation costs, and better serve the region's needs while not jeopardizing fish and wildlife habitats and the subsistence activities of residents.

Objective 1. Identify deficiencies in the existing transportation system.

Objective 2. Identify potential transportation routes and facilities that would enhance the development of the region's resources.

- Objective 3.** Identify potential adverse impacts of developing new transportation facilities and mitigating measures which would minimize these impacts.
- Objective 4.** Avoid siting transportation routes, utility systems, and associated facilities in sensitive fish and wildlife habitat and important subsistence use areas. Where no feasible and prudent alternatives exist, ensure adoption of adequate mitigation measures and safeguards.

Goal B: Reflect local concerns in planning for transportation and utility-related facilities.

- Objective 1.** Ensure that development of transportation and utility projects includes consultation with and approval by affected landowners and communities.

2.3.11 Recreation

Popular recreation activities enjoyed in the Bering Straits Region include hunting, fishing, boating, beachcombing, hiking, camping, picnicking, berry picking and gathering, dog and snow machine racing, photography, bird watching, and sightseeing. Historical and cultural sites also provide educational and recreational attractions. With proper planning and development, parks, beaches, and other coastal recreational areas can contribute to a healthy environment and regional economy.

Goal A: Provide adequate recreational opportunities for the people of the Bering Straits Region and state, national, and international visitors in a manner which is compatible with traditional Inuit ways of life.

- Objective 1.** Identify lands used primarily for recreational activities.
- Objective 2.** Avoid conflicts between recreation and other land uses, particularly subsistence activities.

2.3.12 Timber Harvesting and Processing

Upland and bottomland forest ecosystems are found in the southwesterly slopes, terraces, and floodplains of the Niukluk, White Mountain, Koyuk, Buckland, Shaktoolik, Ungali, Unalakleet, Iglulalik, and Egavik River valleys. Before initiating timber harvests, other values for the forested land (e.g., wildlife habitat, watershed, and recreation) must be considered in the overall land management plan.

Goal A: Provide opportunities for harvesting and processing of timber and driftwood which are in accordance with local, state, and national interests and which are compatible with traditional Inuit ways of life.

- Objective 1.** Identify potential adverse impacts of timber harvesting and processing and ensure adoption of mitigating measures which would minimize these impacts.
- Objective 2.** Facilitate the establishment of public access to lands traditionally used by residents for driftwood collection purposes.

2.3.13 Fish and Seafood Processing

Commercial salmon, herring, and crab fishing in Norton Sound are important supplements to the traditional subsistence economy. The North Pacific Management Fishery Council prepares fishery management plans within a Fishery Conservation Zone extending 200 miles from the shoreline of Alaska, excluding areas within the territorial sea over which the state has management authority. The Alaska Department of Fish and Game exercises the state's authority over fishing in state territorial waters. Sub-regional advisory boards advise the Department of Fish and Game on specific matters of concern to commercial fishermen, such as permitted areas and hours of operation. Coastal management is responsible for identification of sensitive and important fish spawning, rearing,

and migrating areas and potential conflicts with other uses of these lands and waters. The most significant impacts of seafood processing on coastal waters concern adverse impacts to water quality.

Goal A: Ensure that commercial fishing and seafood processing is compatible with the environment.

Objective 1. Avoid the discharge of materials and pollutants from seafood processing facilities or fishing vessels which may have an adverse impact on aquatic habitat and fish populations. Where no feasible and prudent alternatives exist, ensure adoption of adequate mitigation measures and safeguards to protect fisheries resources.

Goal B: Ensure that state and federal agencies maintain and/or enhance fish populations and productivity and their contribution to the cash economy needs of the region's people.

Objective 1. Avoid scheduling coastal development activities and locating associated facilities in sensitive fish habitats and important commercial fishing areas. Where no feasible and prudent alternatives exist, ensure adoption of adequate mitigation measures and safeguards.

Objective 2. Ensure that stipulations designed to minimize adverse impacts on commercial fishing from resource extraction and processing activities are incorporated into leases and permits and are enforced.

Goal C: Facilitate expansion of fisheries in the Bering Strait Region that will benefit local fishermen.

Objective 1. Encourage preparation of a fisheries development plan that identifies opportunities for maintaining or expanding the commercial fishing opportunities for local residents in the Bering Straits Region.

Chapter 3: Coastal Boundary

3.1 INTRODUCTION

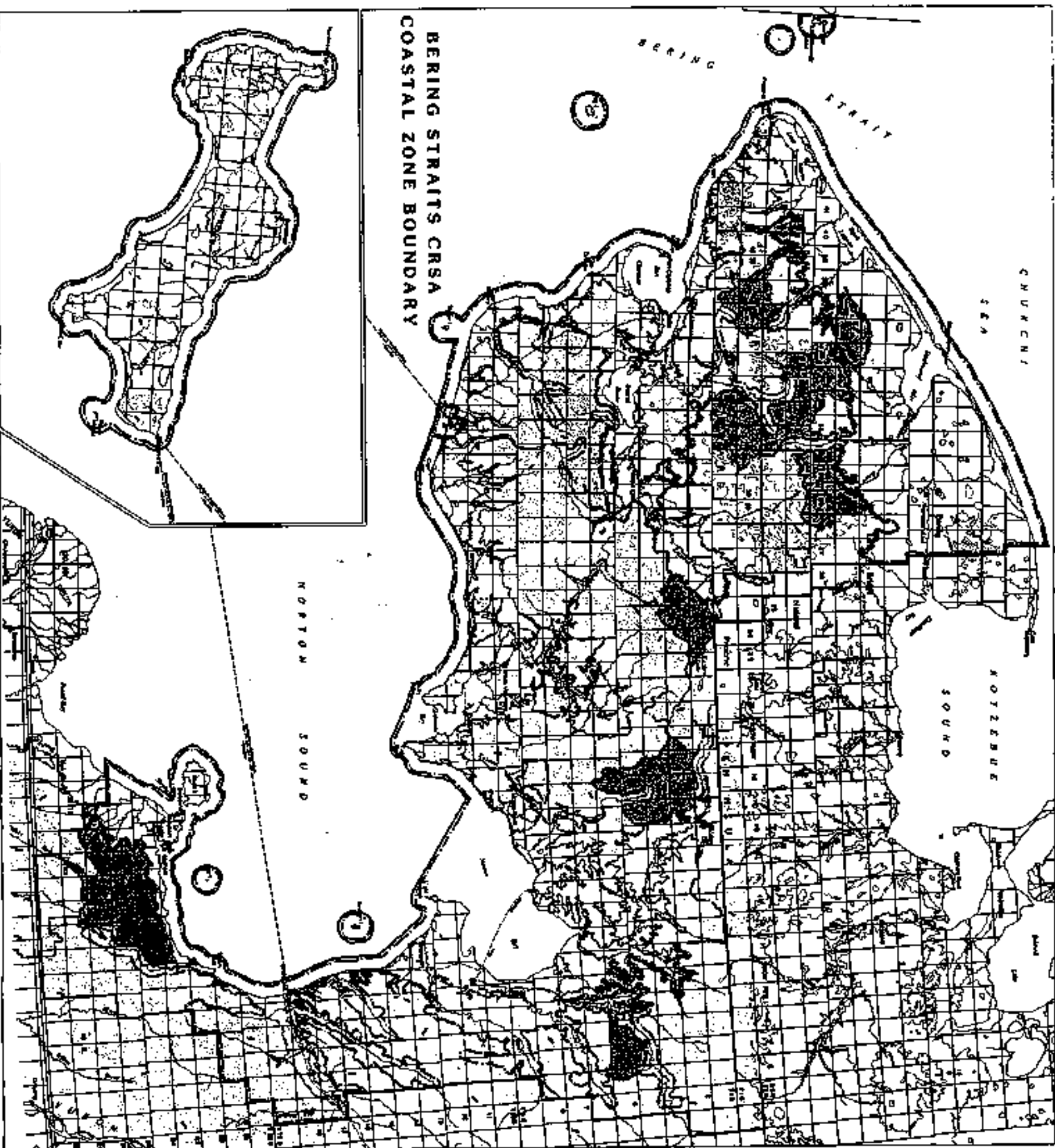
This chapter identifies the coastal zone boundary for the Bering Straits Coastal Management Plan (Map 3-1) and provides a description of coastal resources, a summary of anticipated uses and activities of the lands and waters, and the direct and significant impacts to coastal resources which could occur from these uses. The compatibility of the Bering Straits CRSA coastal boundary with the NANA CRSA to the north and Cenatiutit CRSA to the south is also discussed.

The identification of the inland and seaward limits of the Bering Straits Coastal Resource Service Area coastal zone boundary is an important part of the development of the district Coastal Management Program. The lands and waters encompassed by the coastal zone comprise the area in which the enforceable policies of the Bering Straits Coastal Management Plan directly apply. This area is referred to in the Alaska Coastal Management Program (ACMP) Guideline 6 AAC 85.040 as the "coastal area". The coastal area includes all lands and waters within its boundaries not subject to the exclusive jurisdiction of the federal government (i.e., State and private lands and waters). Under federal law, federal lands are "excluded" from the State's coastal area. Federally authorized uses and activities and direct federal actions on these federal lands and waters that affect any land or water use or natural resources of the Bering Straits CRSA coastal zone must be consistent with the district program to the maximum extent practicable (Section 307(c), Federal Coastal Zone Management Act of 1972, as amended).

The Alaska Department of Fish and Game (ADF&G), in cooperation with the former Office of Coastal Management (presently Division of Governmental Coordination), utilized resource information available to the agency to define the coastal zone of Alaska. This initial determination was published in 1978 in a series of maps entitled the *Biophysical Boundaries of Alaska's Coastal Zone*. The coastal area was defined in terms of three zones: direct interaction, direct influence, and indirect influence. These zones were established as a result of interviews with biologists and others familiar with the region and a review of available scientific literature on the biological and physical processes of Alaska's coastal region. The specific criteria used to delineate these zones are presented on the referenced maps.

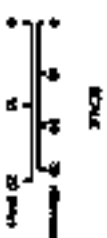
The biophysical boundary maps for the entire State were completed by the Alaska Department of Fish and Game in a relatively short period between 1975 and 1977. The inventory was based on biophysical information and no assessment of potential uses and activities was made. It should be recognized that the data base for resource information has been significantly expanded and refined since that time. Baseline knowledge of the biological and geophysical relationships between the marine and terrestrial environment has been supplemented with region-specific data for resource distribution, the knowledge and familiarity of local residents with coastal resources, and a more complete understanding of interactions, sensitivities, and vulnerabilities to disturbance.

In 1978, the Coastal Policy Council adopted the three-mile territorial limit of State waters as the seaward limit of the coastal zone, and the inland extent of the zone of direct influence as the landward limit of the coastal zone. This zone is depicted on maps entitled *Interim Coastal Zone Boundaries of Alaska*, published by the former Office of Coastal Management (presently Division of Governmental Coordination). The Coastal Policy Council recognized that a current analysis of uses and activities and corresponding direct and significant impacts should be completed prior to finalization of the State's coastal zone. To accomplish this objective, the Coastal Policy Council, through 6 AAC 85.040, gave coastal districts the responsibility and opportunity to evaluate the initial coastal zone boundary, potential uses and activities, direct and significant impacts, and to propose a final coastal zone boundary that best fits the ACMP criteria and the district conditions. ACMP Guideline 8 AAC 85.040 allows coastal districts to adopt the initial (interim) coastal boundary or deviate from it. No justification is required if the coastal



Bering Straits CRSA

- Coastal Zone Boundary
- Bering Straits CRSA Boundary
- Name Coastal Zone Boundary
- 200-foot Elevation Contour
- Permit Notification Area



The preparation of this document was assisted in part by funds from the Alaska Coastal Administration Program and the Office of Ocean and Coastal Resources Administration, National Science and Atmospheric Administration, U.S. Department of Commerce. It was administered by the Alaska Department of Community and Regional Affairs, Division of Land Use and Regional Assistance.

Map 3-1
BERING STRAITS CRSA
COASTAL BOUNDARY
June 1991

district adopts the interim coastal boundary. However, coastal districts must provide justification as outlined in 6 AAC 85.040 where they diverge from the initial boundaries.

The final boundaries of a coastal district may deviate from initial boundaries if the district demonstrates that the adjusted boundaries:

1. extend inland and seaward to the extent necessary to manage uses and activities that have or are likely to have a direct and significant impact on marine coastal waters; and
2. include all transitional and intertidal areas, salt marshes, saltwater wetlands, islands and beaches.

The term "marine coastal water" as used in (1) above is defined as "water adjacent to shorelines which contains a measurable quantity of seawater, including sounds, lagoons, bays, ponds, and estuaries, and the living resources that depend on these bodies of water" (6 AAC 85.000(2)). In other words, the coastal area boundary may extend inland to the extent necessary to manage uses and activities that have or are likely to have a direct and significant impact on the living resources that depend on saline coastal waters. These provisions were interpreted by the U.S. Department of Commerce (1979) in the Final Environmental Impact Statement for the ACMP. They concluded that, "... with all of these (biological and geophysical) relationships established, the 'biophysical boundary' method simply declares that an impact on these relationships could result in an 'impact on the coastal waters', (the) ACMP went further, and declared that an impact on animals using the coastal waters, including anadromous fish, is part of the definition of impacts on coastal waters."

If these criteria are met, then the "final boundaries of the coastal area subject to the district program may be based on political jurisdiction, cultural features, planning areas, watersheds, topographic features, uniform setbacks, or the dependency of uses and activities on water access" (6 AAC 85.040(d)). The final boundaries of the district "must be sufficiently compatible with those of adjoining areas to allow consistent administration of the Alaska coastal management program" (6 AAC 85.040(e)).

3.2 BERING STRAITS CRSA COASTAL BOUNDARY

The Bering Straits CRSA coastal boundary, as approved by the Coastal Policy Council and the federal Office of Ocean and Coastal Resource Management, includes areas where activities have or are likely to have direct and significant impacts on coastal resources, including anadromous fish. This coastal area encompasses a combination of selected watersheds, drainage basins, and uniform one-mile corridors from ordinary high water along each side of fish streams and rivers that provide habitat for important populations of anadromous fish (Map 3-1).

The seaward coastal zone boundary of the Bering Straits CRSA extends three miles seaward from the coastline and encompasses the waters of Norton Bay. In addition, all offshore islands within the Bering Straits CRSA (including St. Lawrence Island) are included in their entirety, with the coastal zone boundary encompassing the same three-mile seaward limits from their respective coastlines (Map 3-1).

The *Biophysical Boundaries of Alaska's Coastal Zone* (ml) the zone of "indirect influence" (the area potentially considered for coastal boundary expansion) to waters which flow into coastal waters of the Bering Straits CRSA. The inland coastal boundary extension is necessary to manage foreseeable uses and activities that have or are likely to have direct and significant impacts on saline coastal waters and the populations of anadromous fish which are dependent upon those waters. Anadromous fish are a highly important component of the natural resources of the Bering Straits CRSA, supporting both subsistence and commercial fishing activities which are an integral part of the economy and lifestyle of residents of the region.

Within the resource-rich Bering Straits region, the harvest of renewable resources and the extraction, processing, and transportation of non-renewable resources are current and potential uses and activities within the coastal area. In the Bering Straits CRSA, mineral exploration and development are the uses and activities most likely to occur which could have direct and significant impacts on living resources dependent on saline coastal waters. To protect anadromous fish resources and habitats in the areas with greatest potential for mineral development, the Bering Straits CRSA coastal area boundary includes watersheds and drainages where mineral potential is rated as high or very high by the Alaska Department of Natural Resources (ADNR). For lands within the CRSA south of Cape Denbigh where mineral potential has not been recently evaluated by the ADNR, the potential for mineral development has been associated with highly mineralized terranes, as identified by the Arctic Environmental Information and Data Center in a map series published in 1982 (Volume 2, Map 7-1).

Areas inland from the interim coastal boundary with identified mineral resources of lesser potential have not been included in the coastal area boundary due to the reduced likelihood of development in the foreseeable future. However, the Bering Straits CRSA also recognizes that mineralized areas which are presently not rated as high potential could become economically viable development prospects once transportation systems and a support infrastructure are in place for developments in other locations. Inland from the interim coastal boundary, rivers and streams which support anadromous fish in areas where the likelihood of mineral or other development is low are included in the coastal area boundary through provision of a corridor extending one mile from the ordinary high water mark on both sides of the stream, or from the outermost active channel within braided or split-channel floodplains. This corridor extends upstream to one mile above the limits of known distribution of anadromous fish.

The corridor is not intended to be an area where development cannot or should not occur. Based on the topography of the Bering Straits CRSA, this corridor is considered the minimum area necessary to manage uses and activities (other than mineral development) within and proximate to the riparian zone which have potential for direct and significant impact to anadromous fish habitats.

The Bering Straits CRSA coastal boundary also provides for an inland setback of two miles from the marine coastal shoreline where bluffs are adjacent to or in close proximity to the coast. Application of the 200-foot elevation biophysical criteria for the interim coastal boundary is inappropriate where bluffs higher than 200 feet adjoin or are in relatively close proximity to marine waters; in some instances, the interim coastal boundary does not even encompass the coastal bluff. In these situations, an inland boundary has been prescribed to encompass areas clearly within a zone of marine coastal influence and in which uses and activities could have direct and significant impacts on coastal habitats and coastally-dependent resources.

The Bering Straits CRSA coastal boundary, identified for the management of uses and activities which may adversely affect anadromous fish habitats, also encompasses many of the coastal habitats recognized as important to non-anadromous fish, waterfowl, seabirds, shorebirds, and wildlife (Volume 1, Resource Inventory). In addition, some important habitats utilized by the region's domesticated reindeer also occur within the delineated coastal area boundary.

Map 3-1 shows that the coastal area boundary south of the Inglutalik River to the southern limits of the CRSA is comprised of the interim coastal boundary, one mile corridors along anadromous fish streams, and limited extent mineralized areas within portions of the drainage basin of the Unalakleet, Shaktoolik, Ungalik, and Inglutalik Rivers.

From the Koyuk River west to the Sinuk River, extensive and contiguous zones of high mineral potential encompass the watersheds of the Koyuk, Tubutulik, Fish, Nukluk, and Sinuk Rivers within stream reaches utilized by anadromous fish. The portions of these watersheds which emanate from high potential mineralized areas inland from the interim boundary are included within the coastal boundary. Coastally-associated bluffs within two miles of the marine coastline are included in the coastal boundary near Bald Head, and between Moses Point and Cape Darby. The City of Nome has developed its own coastal management program, and the area encompassed by the Nome district is not included within the Bering Straits CRSA coastal boundary.

Anadromous fish habitats in rivers draining to Imuruk Basin and Port Clarence include non-mineralized areas south of the Basin, and extensive mineralized zones in the Kuzitrin, Noxapaga, Agaigpuk, and American Rivers. Watersheds and portions of drainage basins which originate in these high potential mineral areas are included in the coastal area boundary. Where mineralized areas are not present within the watersheds of anadromous fish streams, one mile corridors along the watercourse are delineated. Coastally-associated bluffs within two miles of the marine coastline of Port Clarence south and east of Teller are included within the coastal boundary.

West of Port Clarence to Cape Prince of Wales, and north along the coast to Shishmaref Inlet, anadromous fish habitats and high potential mineral areas are more widely distributed and interspersed, creating a coastal boundary comprised of smaller watersheds, portions of anadromous fish stream drainage basins, and one mile corridors along anadromous streams where high mineral potential has not been identified. The coastal topography northeast from Cape Prince of Wales changes to a broad coastal plain which extends inland up to 15 miles before foothills are encountered. West of Brevig Lagoon near Lost River, coastally-associated bluffs within two miles of the marine coastline are included in the coastal area boundary.

From Shishmaref Inlet north to the common boundary with the NANA CRSA, the broad coastal plain is principally encompassed by the interim coastal boundary and shorter drainage systems which have not been documented to support anadromous fish. This area does not contain identified mineralized areas adjacent to the coast, but mineralized areas are present in the upper portions of stream watersheds.

In the coastal boundary regions described above, the transition between watershed or drainage basin criteria and one mile corridor criteria follows the most reasonable and appropriate features available (drainage divides, topography, political boundaries) to appropriately represent resource concerns and to provide an identifiable coastal boundary. Some areas surrounded by the coastal boundary are not included in the coastal area since they are not within the interim coastal area, have not currently been documented to provide anadromous fish habitats, and at present are considered low potential for mineral development or other uses and activities with the likelihood of direct and significant impacts to coastal resources.

Some areas outside the Bering Straits CRSA coastal boundary could be affected by development activities, but there is less certainty that activities occurring in these areas could result in direct and significant impacts to coastal resources. These areas are classified as "Permit Notification Areas" (PNA), and are shown on Map 3-1. The areas include wetlands south of St. Michael, portions of the uplands along the southern part of the Serpentine River watershed, and portions of the Fish River and Tubutulik River watersheds. Authorizing and permitting agencies must notify the Bering Straits CRSA of permit applications which are received for activities in the PNA. The CRSA and the agencies then evaluate each project on a case-by-case basis to determine whether the project is likely to have direct and significant impacts on coastal resources within the coastal boundary. If a project is likely to have such impacts, the project will be subject to the same consistency review procedures applied to uses and activities which occur within the coastal area boundary (see Chapter 6, Implementation).

3.3 JUSTIFICATION FOR INLAND COASTAL BOUNDARY

The ACMP provides specific guidance to coastal districts for coastal area boundary expansions by defining the components that must be addressed under Boundary Guidelines (§ AAC 85.040(a)-(c)). Part (a) outlines the requirements for an appropriate coastal area boundary map to identify the area subject to the district program. Part (b) identifies the initial coastal boundary, based on the *Biophysical Boundaries of Alaska's Coastal Zone*, and indicates that the final boundary must include the zone of direct interaction and the zone of direct influence. The final section of the guideline (§ AAC 85.040(c)) establishes the minimum criteria which must be satisfied by a district before modification of the initial coastal zone boundary can be approved. The identification of probable uses and activities in the Bering Straits CRSA and the identification of direct and significant impacts to saline coastal waters (i.e., anadromous fish and their habitats) attributable to these uses and activities are essential factors for consideration of the district's coastal boundary expansion.

The coastal area boundary modification process followed by the Bering Straits CRSA has expanded upon the biophysical criteria considered during identification of the interim coastal boundary. The inland coastal boundary justification also included area-specific information pertaining to the occurrence of renewable and non-renewable resources (Volume 1, Resource Inventory) and the uses and activities associated with likely development scenarios (Volume 2, Resource Analysis). This has facilitated a detailed evaluation of the land/water relationships in the zone of indirect influence, as anticipated by the Final Environmental Impact Statement for the ACMP. Throughout this process, the Bering Straits CRSA has concentrated attention on the most critical areas for coastal resources to identify justifiable extensions to the coastal boundary for management of uses and activities to protect anadromous fish and their habitats.

The justification for modifying the Bering Straits CRSA coastal boundary to include all areas where uses and activities have or are likely to have a direct and significant impact on coastally-dependent resources requires an understanding of:

1. topographic features (including coastal bluffs), drainage basins, and the inland extent of contiguous coastal wetlands and stream basin riparian habitats;
2. important biological resources and physical processes which are dependent on marine coastal waters (life history and distribution);
3. existing and anticipated future uses and activities in the Coastal District; and
4. the extent to which these uses and activities have or are likely to have a direct and significant impact on marine coastal waters.

The following sections provide the rationale for adjustment of the Bering Straits CRSA coastal boundary based on these four components.

3.3.1 Topography, Drainage Basins, and Coastal Wetlands

The topography of a coastal district is an important determinant of the area where uses and activities may have a direct and significant impact on coastally-dependent resources. Mountainous areas typically magnify impacts because (1) surface runoff due to spring breakup and storm events is generally more rapid and more difficult to control, (2) vegetation is commonly sparse and characterized by low-lying mats which necessitate much broader natural buffers to "filter" potential impacts, (3) natural hazards are more pronounced and capable of damaging man-made developments, and (4) remedial or emergency measures are often difficult to implement due to the remoteness of development sites, rugged terrain, or lack of all-weather roadways or transportation facilities. Topography and drainage patterns are of particular concern when evaluating the potential for transport of sediments, toxic materials, and other contaminants which can adversely affect water quality in downstream aquatic habitats.

The topography of the Bering Straits CRSA is characterized by northeast-southwest trending ridges and valleys of the Nulato Hills along the eastern boundary of the CRSA; the Bendeleben Mountains, Darby Mountains, and Kigluaik Mountains which circumscribe the major rivers of the southern Seward Peninsula, and the expansive coastal plain extending northeast from Cape Prince of Wales to the northern border of the CRSA. Along the common border with the Northwest Arctic Borough, several rivers originate in the Bering Straits CRSA but flow east or north to empty into Kotzebue Sound. The Nugnugaluktuk River is a large system within the coastal boundary which does not discharge into the coastal waters of the Bering Straits CRSA.

Adjoining the wide river valleys of major drainage systems, the foothills and mountains of the upper watersheds rise to 1,500 to 3,900 feet in elevation. The drainage divides between adjacent watersheds are often intermingled with tributary streams extending to the extreme upper limits of the drainage basins. Where zones of high potential mineral areas are located along the crests of ridges separating multiple watersheds, the pattern of drainage becomes highly variable over relative short distances. Drainage patterns are further complicated by numerous ditch systems

that interconnect drainage basins. These ditches were constructed during historical mineral development activity, particularly for placer mining operations. Some of the higher elevation streams are intermittent, while others maintain continuous flow during the winter as evidenced by naturally-occurring areas of ice (icings) during the winter or the presence of spawning or overwintering habitat for anadromous fish. Upper watershed streams are frequently bounded by moderate to steep slopes which are sparsely vegetated. Stream flow in these systems is highly responsive to runoff at breakup and seasonal storm events. Hydrologically, the seasonal flow of water and sediment loads, and water quality, are important factors affecting the biological productivity of the major river systems to which they are tributaries.

Extensive wetland habitats are present within the Bering Straits CRSA as wetlands contiguous to coastal areas, wetlands associated with continuous riparian communities along major watercourses, and isolated wetlands in higher elevation inland areas where topography is relatively flat and drainage is restricted. The largest areas of wetlands contiguous to the coast are located between St. Michael Island and Tolstoi Point and north of Cape Prince of Wales.

Riparian wetlands associated with river and stream systems perform an important function in controlling the quality and quantity of water in the adjacent watercourses. Freshwater wetlands comprise an important component of anadromous fish habitats; waters which flow through or originate in wetlands become enriched with nutrients which contribute to increased productivity in the streams (i.e. increased algal growth, aquatic insect populations, and food sources for anadromous fish). Wetlands also provide integral habitats for coastally-dependent waterfowl and shorebirds in the form of spring and fall migration staging areas, nesting areas, and molting areas.

3.3.2 Resources Dependent on Coastal Waters

The distribution and life histories of biological resources are important considerations when evaluating the area where uses and activities may have a direct and significant impact on coastal resources. The ACMP requires a discussion of coastally-dependent resources that have a potential to be directly and significantly impacted. Some species provide a clearer justification for coastal boundaries because their distribution, life histories, and dependence on saline coastal waters is more apparent and comparatively well documented.

Certain species of waterfowl are highly dependent on the availability of coastal staging, resting, and feeding areas during spring and fall migration. Some waterfowl species utilize wetland nesting or molting habitats significantly inland from saline coastal waters. Within the Bering Straits CRSA, most of the wetland habitats which support coastally-dependent waterfowl and shorebird breeding, molting, and staging areas are currently encompassed by the interim coastal boundary (Volume 1, Resource Inventory; ADF&G 1986). A summary of waterfowl and shorebird distribution, abundance, and important wetland habitats within the Bering Straits CRSA is provided in Appendix A.

Reindeer utilize coastal habitats of the Bering Straits CRSA and provide an important component of the region's economy and subsistence resources. Although reindeer are not directly dependent on saline coastal waters, they display a preference for the coastal environment during the summer. Reindeer herders recognize and understand this preference and ensure that access to coastal areas is maintained. A discussion of the distribution, life history, and importance of reindeer to the economy and lifestyle of the residents of the region is provided in Volume 2, Resource Analysis.

The original biophysical boundaries of Alaska's coastal zone, based in part on anadromous fish distribution, have been substantially supplemented by current research information, including the knowledge of coastal residents. The direct association and dependence of anadromous fish on both saline and freshwater areas provides the strongest justification for modifying the Bering Straits CRSA coastal area boundary to facilitate management of uses and activities which are likely to have a direct and significant effect on coastal resources.

Anadromous fish are a living coastal resource which is indisputably dependent on marine waters. The federal Office of Ocean and Coastal Resource Management (OCRM) acknowledged the appropriateness of considering anadromous fish as biological resources dependent on coastal waters in correspondence to the Bristol Bay CRSA (P. Tweedt to R. Grogan, May 31, 1985) which stated "Alaska has previously recognized, and OCRM approved as part of the ACMP, a definition of coastal waters that includes those animals which are dependant on coastal waters..."

All anadromous fish are dependent upon saline waters during some stage of their life history cycle for feeding, rearing, migrating, overwintering, or combinations of these events; spawning activities of all anadromous fish occur in freshwater systems. Within the Bering Straits CRSA, anadromous fish present in fresh and saline waters of the region include Arctic char, salmon (chum, pink, coho, chinook, and sockeye), whitefish (sheefish, least cisco, Bering cisco, Arctic cisco, broad whitefish, and humpback whitefish), and smelt (boreal and pond). Juvenile salmon show an affinity for nearshore coastal waters during the first few months after entering ocean waters; both juvenile and adult salmon migrate along the coastal shelf following departure from and return to natal spawning streams (Hood and Calder 1981). The currently documented distribution of these species within freshwater streams of the Bering Straits CRSA is presented in Volume 2, Resource Analysis. Arctic char, chum salmon, pink salmon, coho salmon, chinook salmon, and whitefish are most abundant and important to the residents of the region. The following summaries present aspects of the life history of some anadromous fish species in the Bering Straits CRSA pertinent to the boundary justification. Additional information concerning the occurrence, preferred habitats, and life history of these species are presented in Volume 1, Resource Inventory.

3.3.2.1 Anadromous Fish Life Histories

Chum Salmon

Chum salmon enter bays and estuaries from late June to late July and migrate upstream to spawn from late June to mid-September (McLean and Delaney 1978). Chum salmon spawning sites are often located in spring areas where winter water temperatures are moderated. Preferred spawning areas are composed of small gravel and sand riffles where eggs hatch in seven to fourteen weeks (Hale 1981).

The female chum salmon excavates a redd in a gravelly stream substrate where extruded eggs are fertilized by the dominant of several males in attendance. The female then excavates another redd slightly upstream to cover the freshly deposited eggs. Both male and female chum salmon die after spawning. The eggs incubate in the gravel throughout the winter; fry emerge in late spring and migrate directly to coastal waters April to July, feeding primarily on aquatic insects. Chum salmon do not rear in freshwater systems. In early summer, chum salmon feed in estuaries and nearshore waters, moving to offshore feeding areas by mid-August (Hale 1981, Hood and Calder 1981). After three to five years in offshore oceanic waters, chum salmon return to their natal streams to spawn.

Pink Salmon

Pink salmon arrive on the Bering Sea shelf in mid-June and are present in estuaries and the mouths of rivers from late June until late July. They enter spawning rivers from early July through early August, and are capable of spawning in a variety of stream habitats. Preferred spawning habitat is in water depths greater than 0.15 meters, in current velocities of 0.21 to 1.10 meters per second, and where the gravel substrate is 1.3 to 10.2 centimeters in diameter (ADF&G 1983). Spawning activity of pink salmon is similar to that for chum salmon. Fertilized eggs develop in the gravel for 8 to 18 weeks; the alevins remain in the gravel until the following spring. After emergence from the gravel, pink salmon fry immediately migrate to marine coastal waters during late May through June. This outmigration usually occurs during hours of darkness, and the fry do not feed. Pink salmon fry school in nearshore marine waters for about a month before migrating to offshore waters. Pink salmon remain in marine waters for 12 to 18 months before maturing.

Chinook, Coho, and Sockeye Salmon

Life history activities of these three salmon species are similar to those for chum and pink salmon except for timing of spawning, preference for spawning habitats, and the length of time spent in freshwater after emergence from the gravel as fry. King, coho, and sockeye salmon may spend from one to four years rearing in freshwater aquatic habitats prior to migrating downstream to the ocean as smolts. Streams which support these species must provide suitable rearing, feeding, and overwintering habitats in addition to acceptable spawning sites. Since spawning, rearing, and overwintering habitats often have different characteristics, in-stream movement of fish between seasonal use areas may occur. The presence of juvenile salmonids of different stages of development at all times of the year makes watercourses which support king, coho, or sockeye salmon potentially vulnerable to adverse environmental alterations throughout the year.

Chinook, or king salmon, return to coastal estuaries and bays from mid-June to mid-July, entering freshwater streams to spawn from mid-July to early August. Preferred spawning habitats are areas of alternating pools and riffles where the strongest currents pass through medium to fine-sized gravel. After emerging from the spawning gravel, king salmon rear in fresh water for one to three years feeding on aquatic larvae and insects (McPhail and Lindsey 1970). Following freshwater rearing, smolts migrate to coastal waters May and early June and remain in ocean waters for one to six years before returning to spawn.

Coho, or silver salmon, return to spawning streams from early August through mid-September. Preferred spawning habitat for this species is usually fine to medium-size gravel substrate at the head of riffles, in narrow side channels, and in river tributaries. Coho fry emerge from the gravel in May to June of the following year. They rear in freshwater stream habitats for one to four years before migrating to the ocean as smolts (Morrow 1980). After feeding for several months in nearshore waters, coho move to offshore waters for one to three years before returning to spawn.

Sockeye, or red salmon, enter spawning streams of the Bering Straits CRSA from late July to early August and spawn in gravel bottom streams or along lake shorelines by early September. The eggs hatch and the fry remain in the gravel until emergence from April through June of the following year. Sockeyes are highly dependent on lake habitats where they rear from one to three years before migrating to ocean waters in spring and early summer.

Arctic Char

Char inhabit nearly all of the region's drainages, including those on St. Lawrence Island. Char spawn during the fall in the gravel substrate of river pools, often near lakes (Morrow 1980). When they return to freshwater to spawn, char cease active feeding. The female constructs a redd (streambed spawning depression) in which the eggs are deposited and fertilized; several redds may be constructed during the spawning period. Eggs incubate and develop in the gravel during the winter and hatch shortly after break-up in the spring. The newly-emerged fry disperse throughout the freshwater river system and its tributaries, returning to the main stem of the system during August to September.

Juvenile char feed and rear in freshwater habitats until two to four years of age when they migrate to marine coastal water as smolts. While rearing in freshwater, young char feed primarily on insects. In marine waters, both adult and juvenile Arctic char feed actively on sand lance, other small fish, and epibenthic crustaceans. Arctic char return from marine waters to freshwater systems by mid-August to overwinter until the following spring.

Recent studies have shown that char may utilize different river systems for spawning and overwintering, necessitating several annual transits between freshwater streams through marine coastal waters (DeCicco 1984). Arctic char of all age classes overwinter in freshwater. The availability of suitable overwintering areas, pools of unfrozen water, and sufficiently oxygenated water of good quality are factors critical to the winter survival of Arctic char.

Smelt

Boreal (also called rainbow or toothed) and pond smelt range throughout the waters of the Bering Straits CRSA. Smelt are anadromous and are reported to congregate near the mouths of rivers and streams in winter. In fall and spring smelt enter estuaries and rivers to spawn, preferably on gravel or among rocks and aquatic plants (Russell, personal communication; ADF&G 1981).

Whitefish

Humpback, round, and broad whitefish inhabit freshwater and nearshore marine areas of the Bering Straits CRSA. Anadromous whitefish typically spawn from mid-September to late October along shallow stretches of rivers and rocky reefs in lakes. Whitefish winter in lakes, large rivers, and nearshore marine areas. Larvae emerge in early spring and anadromous juveniles migrate to nearshore marine waters where they remain during the summer and, in some cases, during the winter.

3.3.2.2 Anadromous Fish Distribution and Abundance

The following summaries describe the major distribution of anadromous fish in the Bering Straits CRSA. Although some streams with smaller runs are not discussed, they are still of significant importance to local subsistence users.

Salmon

The largest salmon runs in the Bering Straits CRSA enter the Kwiniuk, Unalakleet, Shaktoolik, Ungalik, Koyuk, Tubutulik, Kachavik, Fish, and Pilgrim Rivers and the Salmon Lake system. The largest pink salmon runs enter the Kwiniuk and Unalakleet Rivers (Table 3-1).

Chinook salmon in the Bering Straits CRSA are most numerous in the Unalakleet, North, Shaktoolik, Ungalik, Inglutalik, Kwiniuk, and Tubutulik Rivers. Coho spawn in several of the region's streams including the Sinuk, Nome, North and Unalakleet Rivers. The Unalakleet River sustains a particularly large run. Sockeye salmon runs occur in the Sinuk and Pilgrim Rivers, Salmon Lake, and Grand Central River (flowing into Salmon Lake). The number of salmon reaching major Norton Sound drainages varies from year to year.

Arctic Char

Regional surveys have shown char to be widespread in nearshore marine waters but most abundant in eastern Norton Sound, especially between Cape Denbigh and Totstol Point (Barton 1978). Char migrations between marine waters and spawning areas can be extensive. Char that spawn in the American River migrate to the upper reaches of the river in the interior of the Seward Peninsula.

Smelt

Smelt are reported to occur throughout the coastal waters of the CRSA. Trawl surveys in 1976 and 1977 revealed that boreal and pond smelt were widely distributed throughout Port Clarence and Golovin Bay. Pond smelt are also common around the mouth of the Unalakleet River. Boreal smelt are abundant offshore and their larvae have been encountered throughout the region's nearshore waters (Barton 1978). In the fall, large runs of rainbow smelt converge on the coast, but the distribution of spawning areas for this species is not known.

Whitefish

Humpback and broad whitefish are common in Port Clarence, Golovin Bay, and near the mouth of the Unalakleet River. Round whitefish occur in Port Clarence and between the Unalakleet River and Totstol Point. Sheefish and other whitefish are also present on the northern Seward Peninsula in the Serpentine River, Arctic River and Trout Creek.

TABLE 3-1: PEAK SALMON ESCAPEMENT IN THE BERING STRAITS CRSA, 1983.

Stream Name	Chum	Pink	Chinook	Coho
Nome River	198	9,170	1	--
Flambeau	1,195	200	2	--
Eldorado	994	270	11	--
Bonanza	723	10,576	--	--
Solomon	310	8,180	--	--
Sinuk	2,150	1,070	47	--
Fish	20,077	300	87	--
Niukluk	8,886	50	54	--
Boston	704	--	154	--
Tubutulik	16,345	40,797	135	--
Kwiniuk (Tower Count)	58,907	251,985	287	--
Ungalik	8,357	23,380	21	--
Shaktoolik	12,414	18,705	1,808	--
North River	4,135	4,980	347	--
Unalakleet System	58,540	89,324	3,025	14,656

Source: ADF&G, Preliminary Norton Sound Commercial Salmon Fisheries Report, 1983.

-- Silver runs were not surveyed due to poor weather conditions. The Unalakleet run was counted by sonar.

Note: These counts only provide an indication of the degree of escapement because many fish are not detected. These figures do, however, provide an indication of the relative importance of some drainages to the region's salmon stocks.

3.3.2.3 Anadromous Fish Importance to Economy and Subsistence Lifestyle

Commercial harvests of chinook, coho, pink and chum salmon within the Bering Straits CRSA have ranged between 40,000 and 532,100 fish (2.8 million lbs) in the last 20 years. Between 1980 and 1984, the annual catch averaged 437,200 fish worth approximately \$842,000.

During 1985 and 1988, villagers throughout the Bering Straits CRSA contributed to the public participation phase of the coastal management plan review. Villages listed in Table 3-2 reviewed the resource distribution maps and provided additional information on the location and subsistence use of anadromous fish resources.

Public testimony emphasized the regional importance of anadromous fish to the local residents. Salmon are one of the more important species for subsistence users, particularly in villages along the coast of Norton Sound (Table 3-3). Between 1978 and 1980, the annual subsistence harvest ranged from 49,000 to 77,000 fish (ADF&G 1981 Harvest Survey). In 1982, 93 percent of the households in northwestern Alaska harvested salmon which comprise an important component of their subsistence diet (Ellana 1983). Subsistence foods are preferred because of their taste, high nutritional value, and as a source of cultural identity. A fall-early winter survey in Shaktoolik reported that 57 percent of the animal foods consumed were obtained through hunting and fishing (Thomas 1982). During the spring and summer, many residents move to fishing camps within the coastal area boundary. Throughout the year subsistence fishermen use gill nets, seine nets, traps, and sportfishing tackle.

TABLE 3-2: VILLAGES SURVEYED DURING THE PUBLIC PARTICIPATION SURVEY.

Shishmaref	Golovin	Wales
Elim	Brevig Mission	Koyuk
Teller	Shaktoolik	Mary's Igloo
Unalakleet	Stebbins	Solomon
St. Michael	Gambell	Savoonga
White Mountain		

TABLE 3-3: GEOGRAPHIC PATTERN OF THE USE OF SUBSISTENCE RESOURCES IN THE NORTON SOUND REGION

Village Area	Average and Range Percent Utilization				Average and Range Total Kg/Person
	Mammals	Fish	Fowl	Plants	
Offshore Islands 1	90.9 (73.7-98.8)	5.4 (0.4-15.7)	1.7 (0.6-3.3)	2.0 (0.1-7.2)	1149.1 (308.1-2946.2)
Bering Strait 2	94.2 (91.9-97.1)	2.1 (1.3-2.6)	0.5 (0.4-0.5)	3.2 (1.1-4.9)	841.3 (544.8-1137.0)
Seward Peninsula 3	56.7 (28.9-76.4)	30.4 (14.9-53.7)	2.9 (1.8-3.1)	10.6 (6.8-15.5)	182.8 (153.2-238.4)
Norton Sound 4	45.9 (30.4-63.5)	38.9 (16.6-52.8)	10.8 (1.5-27.6)	4.4 (1.1-9.5)	333.5 (173.7-661.7)

Source: Adapted from data collected by the Northwest Alaska Native Association as presented in Selkregg (1976).

1 Diomedes, Gambell, Savoonga, and King Island.

2 Shishmaref and Wales.

3 Teller, Brevig Mission, and Nome.

4 Elim, Golovin, Koyuk, White Mountain, Shaktoolik, Unalakleet, Stebbins, and St. Michael.

3.3.3 Uses and Activities in the Coastal Area

The identification of existing and anticipated uses and activities for lands and waters within the Bering Straits CRSA is an integral part of the coastal boundary determination. The ACMP requires the coastal zone boundary to encompass all uses and activities which may have a direct and significant impact on coastally-dependent resources.

Human uses and development activities can adversely impact anadromous fish populations through direct mortality, loss or degradation of important habitats, migration barriers, or impairment of important life history functions (Volume 2, Resource Analysis). Current and anticipated uses of the lands and resources which could adversely affect anadromous fish or their habitats include:

- placer mining
- sand, gravel, and rock mining
- pit mining for minerals or coal
- offshore mining
- pipelines and related facilities, including pump and compressor stations, access roads, camp facilities, and airfields
- toxic waste disposal sites
- sanitary landfills, refuse and overburden disposal sites
- transportation and utility corridors
- work pads, facility pads, berms
- geophysical exploration
- oil and gas exploration and development
- sewage treatment facilities
- mineral extraction and processing facilities
- water removal for domestic use, camps, drilling operations, ice roads, and ice pads

Within the Bering Straits CRSA, development projects which include some of the above activities or land uses are currently underway, in various stages of planning, or have the potential for future development depending on world economic conditions. Development projects with the greatest likelihood of occurrence are those which would entail the exploration, extraction, processing, transportation, and export of lode and placer minerals from the highly mineralized areas of the Bering Straits CRSA.

Specific areas of mining activity are often relatively discrete and limited in geographical extent. However, the requisite related facilities for exploration activities, development of transportation systems, and establishment of a support infrastructure include most of the facility sites and activities of concern identified for all development projects. In particular, transportation systems for movement of metallic ores or processed concentrates from mine sites to trans-shipment facilities (such as coastal ports or harbors) will be routed where topographic features are appropriate to engineering constraints. This will often result in roadways which follow or are located in close proximity to riparian habitats along streams and river systems emanating from the higher elevations where minerals are located. In some situations, roadways or transportation corridors could impact anadromous fish habitats outside of the watershed in which mineral development activity occurs. The complex nature of drainage basin patterns within the Bering Straits CRSA increases the potential for this situation to occur.

Extensive areas within the Bering Straits CRSA have deposits of lode and placer minerals, and additional locations have been identified as highly prospective for mineral development (Volume 2, Resource Analysis). Minerals have influenced the region's economic development and settlement patterns ever since placer deposits were discovered near Nome 85 years ago. Placer mining for gold and tin is the principal form of mineral extraction presently occurring in the CRSA.

Placer gold deposits may have been discovered as early as 1865 on the Niukluk River northeast of Nome (Cobb 1973). In 1898 two major gold rushes took place near Council and Nome. Miners staked the first claims along Anvil, Snow Gulch, Glacier, Rock, and Dry Creeks in the Nome area. These creek bed deposits proved to be the area's greatest gold producers.

Other important placer gold-producing areas include the Kougarok area on the central Seward Peninsula and the Council area, where miners have recovered more than 588,000 ounces of placer gold (Stevens, personal communication). A placer dredge operates at Ophir Creek in the Council area and smaller placer operations also mine in the area. The Solomon River and its tributaries have produced over 255,000 ounces of gold, much of it by dredging. The Bluff area, principally Daniels Creek and the offshore extension of the creek placer, produced over 90,000 ounces of gold (Stevens, personal communication). Placer mining activity in the Koyuk area began in the early 1900's along Bonanza, Dime, and Sweepstakes Creeks and the Ungalik River. Placer mines are currently in operation along the Ungalik River.

Placer tin deposits were mined in the Tin City area as early as 1902, with a total recovery of about 2,000 tons of tin concentrate (Selkregg 1974). Current tin production consists of small placer operations at Cape Creek near Tin City owned by the Lost River Mining Corporation.

Platinum has been recovered on the eastern part of the Seward Peninsula, and miners have taken about 31,000 pounds of tungsten oxide from streams and residual deposits near Nome area lodes.

Major lode deposits of tin, tungsten, fluorite, and beryllium reserves occur in the Lost River area on the western Seward Peninsula. The deposit has a potential value greater than the combined value of all past Seward Peninsula placer gold production (Selkregg 1974).

Large lode tin deposits occur elsewhere on the western peninsula, primarily at Ear, Cape, Black, Kougarok, and Potato mountains, and in other areas with granitic intrusions. Lode deposits in the Nome mining district have yielded significant amounts of gold, tungsten, and antimony. Copper ore has been produced from the Ward Mine on the northcentral Seward Peninsula. The region's first hardrock silver mine operated during the 1880's in the Omilak area north of Golovin. Smaller lode deposits in the region contain iron, copper, bismuth, molybdenum, lead, and zinc (Cobb 1973).

Recent exploration has focused on lode deposits of gold in the Nome district. Mapco Alaska, Inc., is evaluating gold deposits at Mount Distin 18 miles north of Nome. In the summer of 1983 Pacific Cornwall Enterprises (PCE) investigated a patented gold claim at the Big Hurrah Mine on a tributary of the Solomon River. High grade uranium-bearing sedimentary rocks have been recently investigated in the Darby Mountains, and other uranium deposits occur in the eastern part of the Seward Peninsula.

As of November 1983, federal land comprising approximately one-eighth of the Bering Straits CRSA is available for mineral leasing and entry or limited sales and leasing under provisions of the Federal Land Policy Management Act (FLPMA) of 1976. This expansive area includes portions of the Imuruk, Bendeleben Mountains, and Selsvik-Nulato Hills subunits.

Although much of the historic mineral development activity in the Bering Straits CRSA has occurred in coastal areas or adjacent to subsequently developed trails and roadways, many of the potential mineral development projects in inland areas would be dependent on prior or concurrent construction of a transportation infrastructure.

Some sites of potential mineral development are located in foothills or areas of steeper topography where higher gradient watercourses support or are proximate tributaries to anadromous fish habitats. A comparison of the area

within the coastal boundary extension and the geographic areas encompassed by high or very high mineral potential (ADNR, Division of Geological and Geophysical Survey, 1985), placer and lode mineral deposits, and likely transportation corridors indicates the potential for significant interaction between development activities and aquatic habitats which support anadromous fish populations.

3.3.4 Direct and Significant Impacts on Coastal Resources

The welfare of anadromous fish populations in the Bering Straits CRSA is closely related to the maintenance of important aquatic habitats which provide spawning, rearing, and overwintering areas. Potential uses and activities identified in Section 3.3.3 include specific actions which could significantly impact anadromous fish populations, including those populations which utilize aquatic habitats in downstream reaches of streams and rivers distant from the principal location of development activity. These offsite impacts are directly related to adverse changes in water quality or water quantity, and the transport of pollutants or toxic substances by surface or ground-water to anadromous fish habitats. In addition, remote development activities can adversely affect anadromous fish habitats when associated facilities or activities necessary for reconnaissance, exploration, transportation, or support of the development impose impacts on anadromous fish habitats. When this situation occurs, the sphere of influence directly related to the development project can extend for a significant distance from the principal activity site.

The management of anadromous fish should protect the habitats which are critical to the welfare and biological productivity of these populations at all stages of their development. This ecosystem management or "full-cycle" overview of biological activities and populations recognizes that disturbance, habitat alteration, or impeded access to critical use areas can eliminate or reduce a resource as effectively as direct impact to a population while seasonally utilizing nearshore marine waters. Adverse impacts to anadromous fish habitats can result from development activities which cause:

- surface run-off from disturbed areas or erodible soils
- removal of stream-side vegetative cover
- alteration of water flow, temperature, or water quality
- increased turbidity or sedimentation above seasonal ambient levels
- introduction of crude oil, petroleum products, or toxic substances
- interference with free movement and timely migration of adult or juvenile fish within and between seasonal use areas
- alteration of the physical integrity of spawning, rearing, or overwintering areas
- removal of water from overwintering areas used by fish or aquifers that replenish overwintering areas
- induced thickening of ice cover on overwintering areas by ice roads, snow removal, or vehicular traffic compaction
- reduction in the availability of preferred food organisms
- disturbance of the hydrologic equilibrium of watercourses
- blasting within or adjacent to aquatic habitats
- thermal degradation of permafrost from vegetation clearing or stripping of the insulating organic mat
- disturbance of stream banks, floodplains, or adjacent uplands which induces hydraulic or thermal erosion
- disposal of overburden within stream floodplains
- discharge of effluents from sewage treatment facilities, mining operations, or processing facilities

Due to the widespread distribution of spawning, rearing, and overwintering habitats for anadromous fish within the Bering Straits CRSA (Volume 2, Resource Analysis) and the interconnected network of migratory pathways utilized during seasonal movements between use areas and marine or estuarine waters, most of the watercourses and associated lakes, springs, and wetlands contribute to the presence and maintenance of anadromous fish habitats. Significant disturbance or alteration of the quality, quantity, or seasonal flow of stream waters supporting

any vulnerable life history activity of anadromous fish has the potential to adversely impact the populations or productivity of affected anadromous fish, if not properly mitigated. Wetlands and tributaries which do not directly provide anadromous fish habitat are often important in the maintenance of flow and water quality for downstream aquatic habitats utilized by anadromous fish and waterfowl (Murphy et al. 1984, Lloyd 1985, Elliott and Finn 1984). The potential for runoff from development activities to contaminate highly productive wetlands, rivers, and lakes was a major concern raised by villagers during the public participation phase of the coastal management program.

Although development activities and uses may occur in areas removed from direct association with anadromous fish habitats, the adverse effects can be transported by surface water flows to drainage channels which ultimately lead to vulnerable use areas for anadromous fish. The impacts of greatest concern are untimely increases in stream turbidity or sediments (Hall and McKay 1983, Bowden and McGinnis 1983, Lloyd 1985) and the introduction of toxic or harmful pollutants (Metsker 1982). Water transport of these impacts for a significant distance from the project activity site has been demonstrated in Alaska under conditions comparable to those which occur in the Bering Straits CRSA.

Turbid waters induced by development activities have been reported to decrease water clarity up to 100 miles downstream from the site of introduction (Townsend 1983). Suspended solids and turbidity from placer mining operations in the Chatanika River system were still discernible 25 miles downstream from the source of disturbance (Joland 1983). Turbid waters attributable to mining activities in a tributary of the George River extended 12 air miles downstream from the site of disturbance before water clarity showed noticeable improvement (Lloyd 1983). Ott (1984) noted water turbidity at levels which can adversely affect photosynthetic activity, invertebrate productivity, water temperature, and rearing and feeding of anadromous fish at distances from 26 to 35 miles downstream from placer mining activities. Increases in turbidity, settleable solids, and substrate embeddedness (a measure of permeability for intergravel flow) have been recorded downstream from active placer mining operations in Alaska (Wagner 1984).

Development activities which cause adverse disturbances to streams have also been shown to decrease the abundance and diversity of invertebrates which provide an important source of food for anadromous fish. Weber and Post (1985) reported study sites in the Birch Creek watershed of the Central Mining District which showed that areas impacted by fine silt and sand downstream from active placer mining areas contained only one-tenth as many benthic invertebrates as study sites upstream from mined areas or in unmined watersheds. Stream substrate embeddedness and turbidity were found to be the best predictive descriptors of reduced invertebrate density and biomass in placer-mined streams along the Steese Highway northeast of Fairbanks (Wagner 1984).

The steeper topography and higher gradient streams within the Bering Straits CRSA coastal boundary increase the potential for transported sediments and turbidity effects to be carried significant distances from the area of disturbance. Additionally, uses or activities in upland areas removed from anadromous fish habitats can also impair the viability and function of spawning, rearing, and overwintering habitats if waters which supply these habitats are diverted, dammed, removed, or seasonally altered.

The Resource Analysis for the Bering Straits coastal management program (Volume 2) provides a detailed analysis of development activity impacts and the sensitivities of fish and aquatic habitats in the CRSA.

It should be recognized that anadromous fish are present in the rivers, streams, and lakes of the Bering Straits CRSA coastal area year-round, but that certain life stages are more susceptible than others to the impacts of specific uses and activities. Development activity impacts of special concern to anadromous fish resources within and adjacent to the coastal boundary of the Bering Straits CRSA are summarized in the following sections.

Alteration of Aquatic Habitats

Aquatic habitats important to anadromous fish can be adversely affected by transportation systems, utility rights-of-way, facility sites, floodplain material sites, solid waste and overburden disposal sites, toxic waste disposal sites, construction camps, erosion control structures, and the alignment of roads and pipeline rights-of-way. Impacts attributable to these activities can include destruction of stream and associated wetland habitats (Pamplin 1979), interference with fish migration and habitat access, and loss of habitat function due to stream channel modifications.

Permeable gravels and continuous winter flow necessary for spawning habitat are adversely impacted by sedimentation (filling of the intergravel spaces, smothering of eggs), channel changes and diversions (discontinuous flows or changes in channel conformation and velocity), and interference with winter water flow. Spur dikes, channel plugs, and guide banks constructed to control erosion can inhibit fish access to side channel spawning areas or dewater these habitats. Improper siting, design, or installation of drainage structures such as culverts can impede fish migrations or block access to rearing, spawning, or overwintering areas. Ice roads and ice bridges can impact overwintering areas through the removal of insulating snow cover, thereby increasing the thickness of ice and reducing the depth of water in overwintering pools. Arctic char are particularly vulnerable to disturbance of overwintering areas since adults, juveniles, and incubating eggs may all be present in restricted areas of freshwater systems during this period of the year. Where winter water resources are limited, important overwintering areas or aquifers that support spawning areas with incubating eggs are susceptible to dewatering by water removal activities.

Development activities which require construction pads and all-season roadways over permafrost terrain often necessitate mining of large quantities of construction materials, including sand and gravel (Burger and Swenson 1977). Due to difficulties associated with mining in permafrost soils, these materials are most commonly accessible in braided river systems or floodplain benches adjacent to watercourses. Excavation in active flood-plains can result in the direct loss of incubating eggs of anadromous fish, destruction of spawning areas, encouragement of "aufeis" (induced icings), and loss of rearing habitat (Woodward-Clyde Consultants 1980). Excavated pits and channels can reduce water depth during low flow periods and create depressions which can trap fish.

A study of potential transportation systems in western and Arctic Alaska (Louis Berger and Associates, Inc. 1981) recognized that the potential impacts of roadways, pipelines, or railways on anadromous fish habitats could be moderate to severe when considering physical barriers, habitat alteration, changes in water levels, stream disturbance, and pollution.

Turbidity and Sedimentation

The quality and productivity of anadromous fish habitats and tributary waters can be adversely affected by sedimentation and turbidity which exceeds ambient conditions or that which is seasonally introduced during periods of high water clarity and low suspended sediment levels. Instream activity and surface disturbing activities adjacent to drainage channels can increase downstream turbidity (Bowden and McGinnis 1983, Lloyd 1985) and decrease production of aquatic macroinvertebrates (Hall and McKay 1983, Wagener 1984), an important food source for rearing salmonids. Primary production (photosynthetic activity in aquatic systems) is greatly reduced in streams when turbidity reduces the penetration of light into the water. Van Nieuwenhuysse and LaPerriere (1986) noted that primary production decreased by 50 percent in interior Alaskan streams subjected to moderate levels of turbidity (average 170 NTU); primary production was undetectable in heavily mined streams (1100 to 3400 NTU).

Mining operations which discharge sediments to watercourses from point source and non-point source activities can have significant adverse impacts to receiving waters. The magnitude of sediment discharges from 10 placer operations in the Kantishna Hills/Dunkle Mine area observed by the Alaska Department of Environmental Conservation during 1982-1983 indicated that 333 to 36,630 pounds of sediment were being discharged per hour into

affected streams (National Park Service 1984). In some situations, sediments deposited within or adjacent to streambeds may be long-term sources of non-point pollution (Weber and Post 1985). Madison (1981) noted that sediment from abandoned placer mines was being transported out of mining basins more than 50 years after mining ceased and was still impacting fishery resources.

Sedimentation of spawning areas can eliminate spawning habitats or increase the mortality of incubating fish eggs and alevins by decreasing the permeability of spawning gravels (Hall and McKay 1983, Weber and Post 1985, Bjorklie and LaPerriere 1985). Analysis of water chemistry in an Alaskan stream where the bed was effectively sealed by deposition of fine sediments produced by upstream mining found that the groundwater below the bed was saltier and relatively devoid of dissolved oxygen when compared to the surface water in the stream (Alaska Cooperative Fishery Research Unit 1985). This isolation between surface and intergravel waters has serious implications for the viability of incubating eggs and invertebrate production.

Sediments can be transported from abandoned mining facilities and activities for significant periods of time after cessation of active mining. Samples of suspended solids in the water downstream from an inactive hard rock mine in Idaho contained from 400 to 60,900 mg/liter of fine sediment attributed to past operations at Blackbird Mill (Platts et al. 1979). Stream samples collected from the same system upstream from the mining district showed 0 mg/liter of suspended solids. The prospects for abatement of the sediment discharge from adits, tailing piles, and tailing ponds was considered poor without restoration and stabilization of the mining and processing sites. Alaska studies in the Birch Creek watershed (Weber and Post 1985) observed that placer mined areas adjacent to streams had not stabilized or re-established riparian communities even after sixty years following cessation of mining activity.

Elevated turbidity levels can also increase stream temperatures, reduce photosynthetic activity, subject fish to physiological stress, impair recreational and subsistence harvest activities, and reduce the efficiency of fishery survey and management techniques (Lloyd 1985, Townsend 1983, Hall and McKay 1983, Bowden and McGinnis 1983, Schneiderhan 1982).

Research by the Alaska Cooperative Fishery Research Unit (1985) on grayling showed that 50 percent of the yolk-sac (newly hatched) fry placed in turbid waters of Birch Creek died within 48 hours; during the same period, only 20 percent of a similar fry population died when placed in clear waters of Twelve-mile Creek. Although fish may migrate through naturally turbid rivers and streams in Alaska, these systems are generally not used for spawning, feeding, or rearing. Comparative studies of caged adult fish in clear and turbid streams noted that although elevated sediment levels did not cause immediate mortality, the fish were experiencing gill abrasion and a loss of body fat, especially in tissues surrounding the internal organs (Simmons 1985).

Hydraulic and Thermal Erosion

Hydraulic erosion can result from clearing and stripping of vegetation or the surface organic mat, altered surface water flow, exposed cuts and fills, drainage from roadways and facility pads, overland travel by vehicles and equipment, or damage to the insulating organic mat in permafrost areas. Thermal degradation of permafrost can also be a problem where gravel workpads or road embankments intercept sheet flow and concentrate the runoff in drainage channels underlain by frozen soils which are not thaw stable. Hydraulic or thermal erosion problems can be particularly detrimental where fine-grained soils increase turbidity or sediment deposition in adjacent watercourses.

Blasting

Explosives are often used within or adjacent to aquatic systems for construction projects, seismic testing, and mining. Fish are adversely affected by shock waves generated by high explosives (Sundberg 1984, Hubbs and

Rechnitzer 1952). Factors which influence the severity of the impact include the type of explosive, size of charge, distance to fish resource, fish species and age (eggs, juveniles, adults), blasting medium (water column or adjacent rock/soil), water depth, and presence of ice. The major cause of injury to fish from blasting shockwaves results from rupture of the swim bladder which is very sensitive to rapid changes in pressure. Controlled tests have indicated that a peak pressure of 40 to 50 pounds per square inch (psi) from a high explosive charge is usually fatal to adult fish with swim bladders (Hubbs and Rechnitzer 1952). A peak pressure as low as 2.7 psi will kill juvenile salmon (Rasmussen 1967). Salmon fry that have not yet developed swim bladders are less vulnerable to damage from blasting than are juvenile salmon (Falk and Lawrence 1973).

Discharge of Effluents, Pollutants, and Toxic Substances

Activities and uses within a watershed which may contact surface drainage channels or groundwater aquifers have a high potential for affecting the freshwater system of the drainage basin in which they are located. Potential effluents and pollutants from development activities include crude and refined hydrocarbons, dissolved metals, pesticides, chemicals, and sewage. Construction or mining projects which require camps, fuel storage, sewage treatment facilities, or processing facilities are potential sources of effluents and pollutants which could adversely impact anadromous fish waters.

Toxic materials could also be introduced to waters used by anadromous fish from mining activities where heavy metals are encountered with the target mineral or toxic substances are used for processing or refining. Heavy metals that could be introduced to aquatic environments from surface-disturbing activities such as mining include iron, cadmium, tin, antimony, aluminum, manganese, mercury, arsenic, and selenium (Meisker 1982). Some heavy metals are bioaccumulative, concentrating in living tissues with subsequent impacts to the living organism. Since some toxic substances and heavy metals may be dissolved in the water column and not just transported, adverse effects could occur a significant distance from the source of pollution. The presence of heavy metals in aquatic systems affects salmonids by inducing toxic effects to fish at low concentrations, initiating loss of aquatic food organisms at concentrations lower than those for fish toxicity, and creating avoidance of waters with heavy metals at extremely low concentrations (Platts et al. 1979).

Placer mining in central Alaska streams has been shown to increase the levels of both recoverable and dissolved arsenic, cadmium, lead, zinc, and copper released to stream waters where these minerals occur naturally with the placer gold (Wagener 1984). These heavy metals are toxic and can be harmful to the aquatic life of streams receiving effluents or runoff from mining operations. LePerriere et al. (1985) found that streams which carried settleable solids from mining activity had highly elevated concentrations of heavy metals. Lead, zinc, and copper downstream of intense mining activity were present in concentrations sufficient to threaten aquatic life.

Hard rock mining which exposes sulfide minerals to oxidation can result in the discharge of strong acids and heavy metals to adjacent watersheds where they are extremely detrimental to aquatic life. Water seepage from adits and leaching from mine waste piles were determined to be the principal sources of cobalt, copper, iron, manganese, lead, and zinc in downstream portions of an east-central Idaho drainage that formerly supported anadromous fish (Platts et al. 1979). Effluents emanating from a mineral mine site in Canada were found to adversely affect the density and species composition of benthic biota and decrease stocks of fish in areas affected by mine effluents (Clarke 1974). The decreased presence of fish in this study was attributed to the direct lethal effects of the toxicants (metals, sulphur compounds, organic reagents), the effects of the toxicants on the reproductive success of fish, and the associated situation of spawning grounds with decreased productivity of affected ecosystems.

Because of their widespread use and transport, hydrocarbon products (crude oil, fuel oil, lubricants) are the pollutants most likely to be associated with development activities in the Bering Straits CRSA. Impacts to anadromous fish and use areas from hydrocarbon spill incidents could be acute (e.g. catastrophic events such as an oil pipeline rupture) or chronic. Acute oil pollution often results from an accident or natural hazard. Chronic pollution often

goes unnoticed for long periods and can be a source of significant impact if undetected. For anadromous fish species that require two to seven years to complete a life cycle, an extended period of time can pass after a pollution incident before effects are noticed. Chronic pollution can also induce sublethal effects such as avoidance behavior or tailing. Some research has indicated that oil spills in anadromous fish streams can interfere with the homing ability of spawning salmon (Thorsteinson 1984). Elster (1973), Tsai (1975), and Malins (1977) provide reviews on the lethal and sublethal effects of many pollutants on anadromous fish and invertebrates.

3.4 COASTAL BOUNDARY COMPATABILITY

The guidelines for district coastal management programs (6 AAC 65.040 (a)) require that the coastal area boundary of the Bering Straits CRSA be sufficiently compatible with those of adjoining areas (Northwest Arctic Borough to the north and Cenaliurrit CRSA to the south) to allow consistent administration of the Alaska Coastal Management Program.

The Northwest Arctic Borough coastal area shares a common boundary with the Bering Straits CRSA approximately 18 miles west of Cape Espenberg. This common border extends south to the vicinity of Kuzitrin Lake, then east to the headwaters of the Buckland River. In this area, the Northwest Arctic Borough coastal area encompasses the interim coastal boundary from the Chukchi Sea coast to the headwaters of the Goodhope River; between this point and the Buckland River headwaters, the Northwest Arctic Borough coastal boundary includes the interim coastal boundary, anadromous fish streams, and the highly mineralized uplands which they drain.

The maintenance of subsistence resources and opportunities, and the protection of anadromous fish and their important use habitats are primary objectives of both the Bering Straits CRSA and the Northwest Arctic Borough coastal management programs. In addition, anticipated uses and activities in the coastal area (mineral development) are similar for both of these programs. Since the common border between the CRSA and the Borough approximates a drainage divide between the two regions, several river systems originate in the Bering Straits CRSA and flow across the border through the Northwest Arctic Borough coastal area (upper Buckland, West Fork, Kivalik, and Nughugahuktuk Rivers). In a similar respect, the Peace, Koyuk, Kuzitrin, and Noxapaga Rivers originate in the Northwest Arctic Borough and flow through the Bering Straits coastal area.

The common border, similar objectives, comparable topography, shared drainages, and parallel approach to protection of coastal resources and habitats will insure that the coastal area boundaries of the Bering Straits CRSA and Northwest Arctic Borough districts are compatible for the purposes of administration of the Alaska Coastal Management Program.

The coastal area boundary of the Cenaliurrit CRSA shares a common boundary with the Bering Straits CRSA approximately 25 miles south of St. Michael. The Cenaliurrit CRSA coastal area encompasses the interim coastal boundary in this area, and the Bering Straits CRSA coastal area includes the interim boundary and a one mile corridor adjacent to anadromous fish streams. The Bering Straits CRSA also has identified a Permit Notification Area along a portion of the common border. The topography in this area limits the inland extent of both coastal areas to approximately ten miles. Drainage watersheds are relatively narrow and short in length. There is only one anadromous fish stream which meanders between the two CRSA's, originating in the Cenaliurrit CRSA. The limited extent of coastal area and common border, and the lack of extensive shared drainages indicate that the Bering Straits and Cenaliurrit CRSA district coastal area boundaries are compatible for purposes of administration of the Alaska Coastal Management Program.

Nome is a first class city within the Bering Straits region that has its own coastal management program. The entire Nome coastal district is in the coastal zone, and is surrounded by the Bering Straits CRSA coastal zone.

3.5 CONCLUSION

Evaluation and review of the Resource Inventory (Volume 1) and the Resource Analysis (Volume 2) for the Bering Straits CRSA coastal management program has indicated to the CRSA Board and the residents of the region that the interim coastal area boundary does not adequately encompass the anticipated uses and activities that have, or are likely to have, direct and significant impacts on marine coastal waters. In compliance with the boundary justification criteria of the Alaska Coastal Management Program (§ AAC 85.040), the Bering Straits CRSA has identified an inland extension of the interim coastal area boundary based on:

- 1) the known distribution of coastally-dependent resources (primarily anadromous fish);
- 2) the documented sensitivities of anadromous fish and the vulnerability of aquatic habitats to development impacts; and,
- 3) the identified uses and activities reasonably foreseeable in the Bering Straits CRSA which are likely to have a direct and significant impact on coastal resources.

The Bering Straits CRSA coastal area boundary includes the interim coastal boundary, portions of river and stream watersheds supporting anadromous fish where potential for mineral development is high to very high, a one-mile corridor adjacent to and upstream from identified anadromous fish habitats, and a two-mile setback from the coast in four specific locations to encompass coastal bluffs.

The one mile corridor is delineated where anticipated uses and activities do not include mineral development, but where potential activities could produce adverse impacts to aquatic communities or associated riparian habitats. A one-mile corridor from ordinary high water along both sides of a stream is considered the minimum area necessary to manage uses and activities within and proximate to the riparian zone which have potential for direct and significant impact to anadromous fish habitats.

The two mile setback to encompass coastal bluffs is necessary to adequately manage coastal habitats adjacent to marine waters to insure that potential direct and significant impacts to marine waters used by coastal resources are minimized.

The Bering Straits CRSA coastal boundary extends beyond the ACMP interim coastal boundary to ensure comprehensive management of all uses and activities which may have a direct and significant impact on coastal waters and the living resources, in particular anadromous fish, which depend on these waters. In addition, Permit Notification Areas are identified to provide an opportunity for the CRSA and permitting agencies to evaluate the potential impacts resulting from uses and activities adjoining the coastal boundary. Mineral development and associated facilities and activities related to exploration, production, processing, transportation, and logistical support are considered the uses and activities with the greatest likelihood of occurrence in the Bering Straits CRSA.

The widespread distribution of anadromous fish within the CRSA indicates that essentially all watercourses and associated lakes, springs, and wetlands contribute to the maintenance of anadromous fish habitats. Significant disturbance or alteration of the quality, quantity, or seasonal flow of surface waters supporting these habitats has the potential to directly and significantly affect fish populations or their productivity. Major project uses and activities outside the Bering Straits CRSA coastal area boundary could also adversely impact anadromous fish populations if downstream aquatic habitats within the coastal area are directly and significantly altered.

Anadromous fish are present year-round in freshwater systems and seasonally in the nearshore coastal waters of the Bering Straits CRSA, but certain life history stages are more susceptible to the impacts of specific uses and activities. The adverse impacts of greatest concern include untimely increases in turbidity or sediments, and the introduction of toxic or harmful pollutants to aquatic systems. These waterborne impacts can be transported

a significant distance from their source to important anadromous fish habitats (Townsend 1983, Ott 1984, Toland 1983). Development activities geographically distant from identified anadromous fish use areas can still impact these vulnerable habitats due to the need for transportation and support facilities for most foreseeable projects. In addition, uses and activities in upland areas spatially removed from anadromous fish habitats can directly and significantly impair the viability of spawning, rearing, and overwintering habitats if waters which supply these habitats are diverted, dammed, withdrawn, or seasonally altered.

Researchers have recommended "comprehensive, interdisciplinary, pre-construction planning" for projects which occur in the Arctic based on experiences with construction of the trans-Alaska pipeline (Pamplin 1979). Recent studies and observations have shown the importance of maintaining the hydrological integrity of Arctic and subarctic aquatic ecosystems to protect the resources which are dependent on these habitats (Elliott and Finn 1974, Murphy et al. 1984, Lloyd 1985). the federal Coastal Zone Management Act of 1972 and the Alaska Coastal Management Act of 1977, as amended, were both enacted to encourage comprehensive and long-term management of the coastal zone. To insure the integrity of subsistence resources, protect important coastal habitats, maintain the productivity and viability of fish and wildlife resources, and provide for sound resource development, the Bering Straits CRSA Board feels that it is essential to review plans for development activities with the coastal area boundary for consistency with the policies of the Bering Straits CRSA coastal management program.

Chapter 4: Subject Uses and Use Areas

4.1 INTRODUCTION

This chapter identifies land and water uses and activities which are subject to the provisions of the Bering Straits CRSA coastal management program. Within this chapter, criteria are presented for determining whether uses and activities are subject to consistency with the coastal management program. Concerns associated with subject uses and use areas have been derived from a synthesis of the Resource Inventory (Volume 1); Resource Analysis (Volume 2); Issues, Goals, and Objectives (Chapter 2); and Coastal Boundary determination (Chapter 3). From these coastal management program elements, attention has been focused on likely uses and activities, areas of special importance or vulnerability, and proper and improper uses of the lands and waters of the coastal area. The Alaska Coastal Management Program provides guidelines for development of the Subject Uses and Use Areas chapter. A coastal management program must include:

- ...a description of the land and water uses and activities which are subject to the district program... (6 AAC 85.070);
- ...a description of the uses and activities...that will be considered proper...and improper within the coastal area...(6 AAC 85.060); and
- ...the policies that will be applied to land and water uses and activities subject to the district program... (6 AAC 85.090).

4.2 SUBJECT USES

All land and water uses and activities occurring on state and private lands, and federal actions which directly affect the Bering Straits CRSA coastal area are subject to the Bering Straits CRSA program, including:

- Land and water uses within the coastal boundary which require approvals, including permits and certifications from the state and federal government; and
- Resource leasing activities that require federal or state permits, land disposals, regional plans, and community facility plans.

These include permitted activities that are subject to categorical approval, general concurrence, and individual project review (see Chapter 6.2). Regulated land and water uses and activities occurring on state and private lands which directly affect the Bering Straits CRSA are subject to the policies contained in this program. Although federal lands are excluded from the coastal area, uses and activities occurring on federal land which directly affect the coastal area are subject to this program.

Examples of uses and activities which are covered by the program include, but are not limited to, the following:

Subsistence:

- Areas used for subsistence activities

Habitat:

- Areas used by fish and wildlife for feeding, breeding, rearing, and migration

Historic and Archaeological Sites:

- Areas bearing important historic or cultural remnants

Coastal Development and Settlement:

- Residential, commercial, and industrial development dredging, filling, and the placement of structures in navigable waters
- Oil and gas development
- Seismic activities
- Structures used to explore and produce oil and gas
- Shore bases and storage areas used to support energy development
- Pipelines and rights-of-way
- Facilities used to separate, treat, and store oil and gas
- Plants used to condense natural gas to a liquid and transport it
- Ports used to transfer energy products
- Yards used to build platforms for offshore oil and gas production
- Refineries and associated facilities
- Petrochemical plants

Mineral Development:

- Mineral prospecting and exploration activities
- Lode, placer, and strip mine development
- Offshore mining
- Sand and gravel extraction
- Peat extraction
- Mineral storage, treatment, and transport facilities

Transportation and Utilities:

- Roads, bridges, docks, ports, and harbors, including crossings of anadromous fish streams

- Ferry routes and terminals
- Airports and railways
- Electric power plants, including hydroelectric projects
- Transmission lines
- Geothermal facilities
- Water supply facilities
- Sewage and solid waste facilities

Recreation:

- Areas used for recreational activities
- Construction of trails, campsites, cabins, lodges, visitor centers, and related facilities

Fish and Seafood Processing:

- Onshore and offshore seafood processing facilities
- Hatcheries and other aquaculture facilities
- Fish research and management facilities
- Fish habitat enhancement activities

The existing statutory and regulatory framework for planning and permitting the above uses will be utilized in the implementation of this program. The specific mechanisms to be used are more fully described in the Chapter 5, Implementation.

Subject uses also include "uses of state or national concern", defined as those land and water uses which would significantly affect the long-term public interest. These include:

- 1) uses of national interest, such as the use of resources for the siting of ports and major facilities which contribute to meeting national energy needs, construction and maintenance of navigational facilities and systems, resource development of federal land, and national defense and related security facilities that are dependent upon coastal locations;
- 2) uses of more than local concern, such as land and water uses which confer significant environmental, social, cultural, or economic benefits or burdens beyond a single coastal resource district;
- 3) siting of major energy facilities, activities pursuant to a state oil and gas lease, or large-scale industrial or commercial development activities which are dependent on a coastal location and which, because of the magnitude of their effect on the economy of the state or the surrounding area, are reasonably likely to present issues of more than local significance;

- 4) facilities serving statewide or inter-regional transportation and communication needs;
- 5) uses in areas established as state parks or recreational areas under AS 41.20 or as state game refuges, game sanctuaries, or critical habitat areas under AS 16.20.

Section 46.40.070 (c) of the Alaska Coastal Management Act describes what must be done before the Alaska Coastal Policy Council can approve a restriction or exclusion of a use of state concern. The Council must find that:

- the Bering Straits CRSA Board has consulted with and considered the views of appropriate federal, state, and regional agencies;
- the Bering Straits CRSA Board has based such restriction or exclusion on the availability of reasonable alternative sites;
- the Bering Straits CRSA Board has based such a restriction or exclusion on an analysis that shows that the proposed use is incompatible with the site; and
- the restriction is not unreasonable or arbitrary.

State agencies have identified uses of state concern which are within their area of responsibility. Following is a list of those state agency concerns.

Department of Transportation & Public Facilities (DOT&PF) — DOT&PF has listed transportation facilities mentioned in Coastal Policy Council Resolution #13 as uses of state concern that include:

"Capital projects that have statewide, inter-regional and inter-district uses which impact the state's transportation system including highways, roads, trails, railroads, pipelines, airports (for land and sea planes), the Marine Highway System (ferries, docks, piers, or terminals), boat docks, and harbors."

Department of Environmental Conservation (ADEC) — ADEC has identified the following uses of concern under their purview within the Bering Straits CRSA:

- conservation and maintenance of air quality in compliance with the Alaska Air Quality Standards (18 AAC 50.020);
- conservation and maintenance of water quality in compliance with the Alaska Water Quality Standards (18 AAC 70); and
- assurance of proper solid waste disposal in compliance with requirements set forth in 18 AAC 60.050.

Department of Fish and Game — ADF&G has identified the following general uses of state concern under their purview within the Bering Straits CRSA:

- conservation of anadromous fish waters;
- harvest of fish and wildlife;
- the research, management, and enhancement of fish and wildlife; and
- protection of refuges, sanctuaries, and critical habitat areas.

In addition, ADF&G has identified the following specific uses of state concern for Department research and management sites.

- Cape Denbigh — herring research and management site
- Kikitarik River — herring research and management site
- Unalakleet River — salmon test net site
- North River — salmon counting tower
- Kwiniuk River — salmon counting tower

Department of Natural Resources (DNR) — DNR has identified several uses of state concern that may occur in the Bering Straits CRSA region:

- the utilization, development, and conservation of state energy resources;
- siting of major energy facilities;
- the utilization, development, and conservation of all state minerals and materials;
- large-scale industrial and commercial development associated with state resource development;
- transportation facilities associated with state resource development;
- the utilization, development, and conservation of all lands and waters belonging to the state;
- the utilization, development, and conservation of all state forest resources; and
- management of state historic, prehistoric, and archaeological resources.

4.3 PROPER AND IMPROPER USES

District programs must identify uses and activities, including uses of state concern, that are considered proper and improper within the coastal area. No uses are categorically prohibited or improper within the coastal boundary. For the Bering Straits CRSA, proper and improper uses are determined by policy requirements and land/water use categories.

All land and water uses and activities are considered proper as long as they comply with the policies of the Bering Straits Coastal Management Program and applicable federal and state regulations. There are specific policies that reference activities in Important Use Areas.

4.4 LAND/WATER USE AREAS

The land use classification and applicable policies have been developed from earlier elements of the Bering Straits CRSA coastal management program. During preparation of the Issues, Goals, and Objectives (Chapter 2) local concerns regarding resource values and use were identified, along with concerns associated with potential impacts from resource development activities. The Resource Inventory (Volume 1) and the Resource Analysis (Volume 2) identify resource values, utilization, and sensitivity as they are potentially affected by development activities

and changes in resource use. This information provides the basis for identifying land use classifications and assigning specific areas to these classifications. Through this procedure, applicable policies can be developed to insure that uses and activities consider and protect the resources of each area.

The Bering Straits CRSA has developed two land and water use classifications for the district: General Use and Important Use. The purpose of each land and water use classification is described below.

4.4.1 General Use Areas

The majority of the lands and waters within the Bering Straits CRSA coastal management program occur within the General Use Area. While this area may support resources used by local residents or resources of importance to the state and nation, they can be adequately managed through implementation of the general policies. These areas do not require designation as Important Use Areas to protect coastal resources. All areas not specifically identified as Important Use Areas are considered to be within the General Use Area.

4.4.2 Important Use Areas

Some areas within the region warrant special attention due to the presence of highly productive wildlife habitat, the ability to sustain a large part of a village's subsistence needs, the occurrence of unusual historical sites or large mineral deposits, recreation, energy development, hazardous areas, or the presence of important fisheries. These areas are very important to the communities within the Bering Straits CRSA and are identified on Map 4-1.

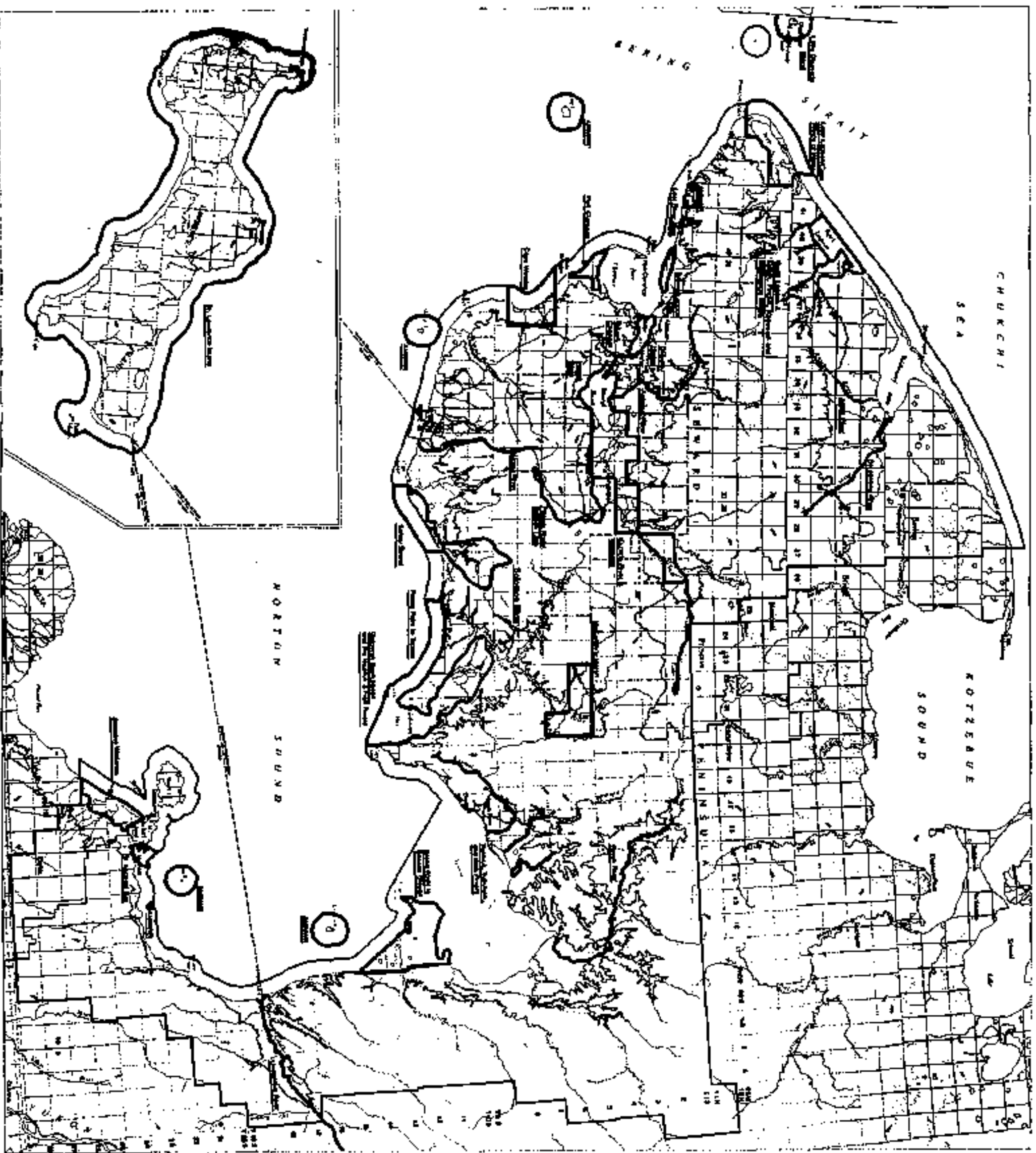
The Important Use Area classification provides the following functions:

- to guide uses and activities on those lands and waters which may need special consideration for protection of biological resources and habitats, subsistence resources and use areas, and cultural resource sites; and
- to guide uses and activities on lands and waters which are potentially important for major resource development activities; these uses and activities include energy facilities, mining, timber, land disposals, and transportation systems.

The Important Use Area classification is applied to specific areas identified by the CRSA Board and local communities. With regard to the policies of the coastal management plan, the intent of classifying Important Use Areas is two-fold:

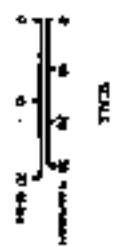
- 1) to develop a limited number of specific policies that provide guidance for activities taking place within areas classified as Important Use Areas; and
- 2) to provide notice that these areas are of particular concern to the residents of the region, and that information contained in the Important Use Area descriptions should be used when complying with policies presented in Chapter 2.

In a legal opinion by the State Attorney General (H.M. Brown to R. Grogan, 4/28/88), the identification of important areas and the development of area-specific policies by coastal districts was found to be "...an essential feature of the ACMP".



● Important Use Areas

ALASKA - Alaska Maritime National Wildlife Refuge



The preparation of this document was financed in part by funds from the Alaska Coastal Management Program and the Office of Ocean and Coastal Resources Management, Bureau of Oceanic and Atmospheric Administration, U.S. Department of Commerce. It was supervised by the Alaska Department of Community and Regional Affairs, Division of Development and Regional Cooperation.

Map 4-1
**IMPORTANT USE AREAS
 IN THE BERING STRAITS CSRA**
 June 1991

The following criteria were applied when evaluating an area for designation as an Important Use Area.

Subsistence:

- 1) An area provides a large part of the sustenance for one or more villages and it cannot be replaced by another site within a village's subsistence range.

Habitat:

- 2) An area is essential to a large part of the region's population of one or more fish, wildlife, or plant species.
- 3) A productive habitat is sensitive to degradation or species occupying the site are sensitive to disturbance.
- 4) An area has special scientific or research value.

Historic Site:

- 5) A site has great prehistoric, historic, or spiritual significance to residents of the region.

Hazardous Area:

- 6) An area is of high development potential and is subject to serious geophysical hazards.

Mineral Development:

- 7) An area contains major (known) mineral deposits which appear to be commercially extractable and should be safeguarded from uses that would preclude or deter mineral extraction.

Energy Development:

- 8) An area may be needed for siting of facilities for oil and gas, mineral, or port development and should be protected from conflicting uses which have less demanding site requirements.
- 9) An area has been identified as a potential onshore energy facility site.

Recreation:

- 10) An area supports intensive recreational use.
- 11) An area supports recreational opportunities of a quality or type not available elsewhere in the region.

Commercial Fisheries:

- 12) An area supports major commercial harvests of fish or shellfish in the Bering Straits region.

The following sections identify such areas and provide a description of their attributes. The level of detail in the discussion typically reflects the level of available information on the site rather than its relative importance.

4.4.2.1 ST. LAWRENCE ISLAND, ADJACENT ISLANDS, AND ROCKS

Reasons for Designation:

- Habitat
- Subsistence
- Historic sites

Habitat:

This 1.27 million-acre, privately-owned island (Vol. 1, Map E) supports approximately 1,000 people, 2.7 million seabirds (Sowts et al. 1978) representing more than half of the region's seabird population, and as many as 100,000 walrus (Frost et al. 1982). These wildlife resources are of local, regional, state, national, and worldwide importance.

Seabirds occupying Stolbi Rocks and seven colonies along the northern side of the island contain most of the bird populations. Some colonies extend for several miles along cliffs 60 to 1,000 feet high. The largest colony contains as many as 75,000 birds at densities greater than 10 birds per square meter (Drury 1980). Approximately 62 percent of the crested auklets of the eastern Bering Sea region seasonally occupy the island (Drury 1980).

In addition to the millions of seabirds, the island's extensive wetlands and lagoons support substantial numbers of migratory waterfowl and shorebirds (Volume 1, Map 9). Twenty-two waterfowl species use the island, and at least 12 species nest there (Fay 1961). Approximately 9,000 ducks, geese, and swans nest near the island's lagoons and lakes. Another 25,000 birds feed and molt in these areas. In winter, the open water around the island supports about 500,000 oldsquaws and 50,000 eiders (DOI 1982). In July and August, 10,000 to 20,000 immature emperor geese (Fay 1961) from the Yukon Delta and perhaps the Soviet Union (King and Dau 1980) feed along the island's northern and southern coasts. These areas may represent the principal summering grounds for the Alaskan and Siberian immature emperor geese population. Snow geese from Wrangell Island (USSR) rest on the island in late September before continuing their southern migration.

In spring and fall, large walrus herds come ashore on St. Lawrence Island (Volume 1, Map 10A). In October 1978, 90,000 walrus were hauled out on Salgaht, Maknik, and Kialegak points, while others gathered at Chibukak Point, Southwest Cape, and Pujuk Island (Frost et al. 1982).

Subsistence:

Because of the island's isolated nature, small size, lack of employment, high price of store-bought goods, and the limited development potential, the island's subsistence economy is highly developed and is the foundation upon which the residents maintain their physical and cultural survival. The island's birds, bird eggs, and walrus as well as polar bear, reindeer, Arctic fox, bowhead and other whales, seals, crab, fish, and plants provide the bulk of the villagers' diet (Ellanna 1980).

Historic Sites:

St. Lawrence Island also has unique archaeological resources which provide invaluable insight and appreciation of early Siberian Yuit life. Thirty-five abandoned villages have been identified and many more seasonal camps (Volume 2, 5-1).

Land Ownership and Management:

The two native corporations for the villages of Gambell and Savoonga hold surface and subsurface title to all of St. Lawrence Island, adjacent islands, and rocks. State ownership is limited to the tidal and submerged lands

seaward to the three-mile limit and the beds of navigable streams. St. Lawrence Island is within the Alaska Maritime National Wildlife Refuge.

Lands within the Alaska Maritime National Wildlife Refuge will be managed under the refuge management plan. There are currently no site specific management plans for either federal or state lands on St. Lawrence Island. The native corporations for the villages of Gambell and Savoonga should be contacted for appropriate land use policies applicable to village corporation lands (Appendix B).

4.4.2.2 LITTLE DIOMEDE ISLAND

Reasons for Designation:

- Habitat
- Subsistence

Habitat:

This small rocky island off the tip of the Seward Peninsula in the Bering Straits seasonally supports a phenomenal concentration of seabirds. Least and crested auklets account for most of the 1.2 million birds (Sowls et al. 1979; Volume 1, Birds), but the island also supports 20,000 to 35,000 black-legged kittiwakes (Drury 1980) and 40,000 to 60,000 common and thick-billed murre (Drury 1979). Birds arrive in May and begin laying eggs in late June and continue through July. Birds are particularly sensitive to disturbance during this period. In late summer and fall, birds begin their southern migration. Migrating walrus which are sensitive to disturbances periodically haul-out on the island.

Subsistence:

Birds, bird eggs, and native plants from the island, and walrus, seals, beluga and other whales, fish, and king crab from the sea provide the bulk of the residents' diet (MacLean 1985).

Land Ownership and Management:

The native corporation for the village of Little Diomed (surface) and Bering Straits Native Corporation (subsurface) hold title to the island. State ownership is limited to the tidal and submerged lands out to either the 3-mile limit or the International Boundary, depending upon which is closer. Little Diomed Island is within the Alaska Maritime National Wildlife Refuge.

Alaska Maritime National Wildlife Refuge lands will be managed accordance with the refuge management plan. There are currently no site-specific management plans for state lands on Little Diomed Island. The native corporation for the village of Little Diomed should be contacted for appropriate land use policies applicable to village and regional corporation lands (Appendix B).

4.4.2.3 STEBBINS WETLANDS

Reasons for Designation:

- Habitat
- Subsistence
- Historic Site

Habitat:

The wetlands southwest of Stebbins are extensive and contain some of the highest quality waterfowl habitat in the region. This habitat supports large numbers of nesting waterfowl and significant populations of shorebirds (Woodby and Dovoky 1982). In spring when the wetlands are regularly flooded, large flocks of ducks gather here. Aerial surveys by Woodby and Dovoky (1982) estimated that approximately 134,000 shorebirds and waterfowl occupied the non-aquatic areas of these wetlands; an undetermined number of birds occupied ponds and waterways (Volume 1, Map 9 and Birds).

The wetlands are fringed with canals and water bodies which receive regular infusions of saltwater on high tides. Broad expanses of the wetlands are periodically flooded during coastal storms. As a result, these wetlands which are close to Norton Sound Oil and Gas Lease Sales 57 and 100 tracts and potential onshore facility sites are highly vulnerable to contamination. Fine sediment and vegetation which comprise the wetlands could entrap oil, causing it to persist for up to 100 years (DOI 1985). Consequently, waterfowl can be contaminated for many years by direct contact or ingestion of contaminated foods (Starr et al. 1981). RPI (1981) noted that this segment of coastline would be almost impossible to protect in the event of an oil spill of any magnitude reaching the area.

Subsistence:

Stebbins, St. Michael, and Kotlik residents hunt waterfowl and gather eggs in the area. This wetland is contained in the Yukon Delta Wildlife Refuge. The U.S. Fish and Wildlife Service (USF&WS) manages the refuge for protection of shorebirds, seabirds, and waterfowl habitat; other fish and wildlife resources; and subsistence (Volume 1, Land Ownership).

Historic Site:

The remains of five early 1900 marine vessels are present within the St. Michael Channel.

Land Ownership and Management:

Major landowners are the native corporations for the villages of St. Michael's and Stebbins who hold title to portions of the surface estate. Bering Straits Regional Corporation holds title to portions of the subsurface estate, and the federal government owns the remainder. State ownership is limited to the tidal and submerged lands out to the three-mile limit and the beds of navigable streams.

There is no site-specific area plan for federal lands. State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan, adopted in 1989. The native corporations for the villages of St. Michaels and Stebbins should be contacted for appropriate land use policies applicable to village and regional corporation lands (Appendix B).

4.4.24 ST. MICHAEL BAY

Reasons for Designation:

- Habitat
- Subsistence
- Potential energy facility site
- Commercial fishing
- Historic sites

Habitat:

Herring spawn along the shore of St. Michael Bay during the first half of June (Starr et al. 1981). Eelgrass beds in St. Michael Bay provide an important food source for birds, nursery areas for fish and crab, as well as a spawning area for herring (Barton 1978). Herring eggs and larvae are extremely sensitive to oil contamination. Much of the area's productivity could be lost if St. Michael Bay were contaminated (Barton 1978).

Subsistence:

In addition to providing an important commercial herring fishery, the bay's herring population also supports an important subsistence fishery. Local residents also depend on the bay to meet their subsistence needs for seals, salmon, and waterfowl.

Potential Energy Facility Site:

St. Michael Bay is one of five potential onshore oil and gas facility sites identified by Woodward-Clyde (1984) as suitable for development if commercial quantities of hydrocarbons are discovered in Norton Sound. St. Michael is one of two deepwater ports in the region. Development would stimulate the local economy and result in more marine traffic and support facilities as well as increase the probability of oil spills and chronic pollution.

Commercial Fishing:

In addition to supporting commercial salmon fisheries, the area is also an important commercial fishery for herring. The Department of Fish and Game (Starr et al. 1981) identified the entire southern Norton Sound coastline as an area with a high probability of acute or chronic oil pollution affecting important habitats or sensitive biological resources in the event that potential oil reserves in Norton Sound are developed. RPI (1981) stated that this area would be impossible to protect in the event of an oil spill.

Historic Site:

In 1833, St. Michael became the first European settlement in the Bering Straits Region. At the turn of the century, St. Michael served as an important trade and trans-shipment center for Yukon gold rush activity (Volume 1, History). The area contains cemeteries and buildings of historic value.

Land Ownership and Management:

Major land owners are the native corporation for the village of St. Michael (surface), the Bering Straits Native Corporation (subsurface), and the federal government. The corporations hold title to St. Michael Island and the lands adjacent to St. Michael Bay. The State owns the tidal and submerged lands out to the three-mile limit and the beds of navigable streams. Beulah Island and Whale Islands are within the Alaska Maritime National Wildlife Refuge.

Federal lands are managed in accordance with the Alaska Maritime National Wildlife Refuge plan. State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan, adopted in 1989. The native corporation for the village of St. Michael should be contacted for appropriate land use policies applicable to village and regional corporation lands (Appendix B).

4.4.15 UNALAKLEET RIVER DRAINAGE

Reasons for Designation:

- Habitat
- Subsistence
- Commercial fishing
- Historic sites
- Recreation

Habitat and Subsistence:

The Unalakleet River and its tributaries, the North, South, Old Woman, and Chiroosky Rivers, are important subsistence use areas for the people of Unalakleet. This Important Use Area also includes the coastal waters extending one mile from the ordinary high water of the Unalakleet River at its confluence with Norton Sound. Subsistence resources harvested include fish (salmon, grayling, whitefish, Arctic char, smelt, and tomcod), mammals (moose, bear, caribou, and beaver), waterfowl, berries, plants, and timber. The drainage also supports commercial salmon fisheries (Volume 1, Map 2).

Commercial Fishing:

The Unalakleet River pink salmon run is usually one of the largest in the region. King, silver, and chum salmon also spawn in the drainage. Commercial fishermen catch herring and salmon in the river estuary and nearby marine waters. Commercial fishermen took an average annual total of 208,000 salmon offshore in the Unalakleet subdistrict between 1978 and 1982. Pinks accounted for 63 percent of the catch, and chums represented twenty-one percent (ADF&G 1983). Herring fishing takes place in a one- to two-week period between May 15 and June 15. King salmon are the first salmon species to arrive in the river (usually in June), followed by pink, chum, and silver salmon, which run well into September.

Historic Sites:

Historic sites in the area include house pits at Old Unalakleet Village, a prehistoric village site, and sites in the Unalakleet River drainage (Volume 2, Map 5-1).

Recreation:

Unalakleet River Lodge, one of two recreational lodges in the region, is located on the Unalakleet River about 10 miles upstream from the mouth. This lodge caters to an international sport fisherman clientele. The Unalakleet River has been designated as a wild and scenic river from its headwaters to the confluence with Chirooskey River. This designation attracts an increasing number of visitors to the drainage each year.

Land Ownership and Management:

The major land owners are the native corporation for the City of Unalakleet (surface), Bering Straits Native Corporation (subsurface), and the federal government. State ownership is limited to the tidal and submerged lands out to three miles and the beds of navigable streams.

Portions of the federal lands are managed pursuant to provisions of BLM's Wild and Scenic River Management Plan for the Unalakleet River and BLM's Central Yukon Planning Area Management Plan. There are no site specific management plans for the remaining federal lands. State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan, adopted in 1989.

The native corporation for the City of Unalakleet should be contacted for appropriate land use policies applicable to village and regional corporation lands (Appendix B).

4.4.2.6 ISLAND POINT TO BEESON SLOUGH, INCLUDING CAPE DENBIGH

Reasons for Designation:

- Habitat
- Subsistence
- Historic sites
- Commercial fishing
- Hazardous areas

Habitat:

Cape Denbigh, at the tip of the peninsula, is the location of the largest seabird colony in eastern Norton Sound (Volume 1, Map 9). Between 14,000 and 20,000 common murre, pelagic cormorants, and horned puffins seasonally occupy the colony (Drury 1980).

Subsistence:

This peninsula and offshore waters are an important subsistence area for Shaktoolik and Unalakleet residents. Local residents harvest fish (salmon and herring), shellfish (crab and clam), waterfowl, eggs, and berries in this area (Volume 1, Map 2).

Historic Site:

Cape Denbigh is also an important archaeological site. The oldest known settlement in the region, Iyatayat, which dates back 7,000 to 9,000 years, is located here (Volume 1, History).

Commercial Fishing:

Commercial fishermen harvest herring (May 15 to June 15, depending on the ice conditions) and salmon (June 8 to August 31) off the peninsula's coast. Between 1978 and 1982, an annual average of 58,000 salmon was taken by commercial fishermen in the Shaktoolik subdistrict. Chums, plinks, and slivers accounted for 46, 39, and 12 percent of the catch, respectively (Schwartz et al. 1984).

Hazardous Areas:

The shoreline near Shaktoolik is subject to severe erosion. Flooding and erosion have forced Shaktoolik to relocate three times in the past 50 years (Volume 1, Communities).

Land Ownership and Management:

The native corporation for the village of Shaktoolik (surface) and Bering Straits Native Corporation (subsurface) hold title to these lands. State ownership is limited to the tidal and submerged lands out to the three-mile limit and the beds of navigable streams. Cape Denbigh is federally-owned and is within the Alaska Maritime National Wildlife Refuge.

Alaska Maritime National Wildlife Refuge lands are managed under the refuge management plan. State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan. The native corporation for the village of Shaktoolik should be contacted for appropriate land use policies applicable to village and regional corporation lands (Appendix B).

4.4.2.7 KOYUK RIVER DRAINAGE

Reasons for Designation:

- Habitat
- Subsistence

Habitat:

This Important Use Area includes the Koyuk River and the coastal waters extending one mile from the ordinary high water of the Koyuk River at its confluence with Norton Bay. The drainage provides habitat for one of the region's largest moose populations. ADF&G estimates that about 30,000 caribou winter east of the Koyuk River to within 10 miles of the coast (Anderson, personal communication). This is by far the largest gathering of caribou in the CRSA. The lower reaches of the river support one of the region's few shellfish populations.

Wetlands south of Koyuk provide excellent shorebird nesting habitat. Extensive coastal mudflats attract thousands of feeding shorebirds (Woodby and Divoky 1982). Brant use the area in spring. In summer swans, geese, ducks and cranes feed in the area. Aerial surveys by Woodby and Divoky (1982) showed that these wetlands support one of the greatest densities of waterfowl and shorebirds in the region (an estimated 44,000 waterfowl, shorebirds, and song-birds). RPI (1981) noted that these sensitive habitats would be very difficult to protect in the event of a large oil spill.

Subsistence:

This river which flows from Kuzitrin Lake to Norton Bay comprises an essential subsistence use area for Koyuk residents. Villagers harvest fish (salmon, whitefish, smelt, grayling, Arctic char, and tomcod) from the river and mammals (moose, caribou, bear, and beaver) and waterfowl from the river valley.

Land Ownership and Management:

The major land owners are the native corporation for the village of Koyuk (surface), Bering Straits Native Corporation (subsurface), and the federal and state governments. State ownership includes the beds of navigable streams.

There is no area-specific management plan for federal lands. State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan, adopted in 1989. The native corporation for the village of Koyuk should be contacted for appropriate land use policies applicable to village and regional corporation lands (Appendix B).

Other Land Uses:

Within the Koyuk River watershed, mineral development is a potential use of coastal resources. Historic and on-going gold mining activity occurs in portions of the drainage.

4.4.2.8 KWINIUK, TUBUTULIK, AND KWIK RIVER DRAINAGES

Reasons for Designation:

- Habitat
- Subsistence
- Commercial Fishing

Habitat and Subsistence:

The Kwiniuk, Tubutulik, and Kwik River drainages located on the southern shores of the Seward Peninsula are important subsistence use areas for the residents of Elim. These Important Use Areas also include the coastal waters within one mile of the ordinary high water at their confluences with Norton Bay. Subsistence resources harvested include fish (salmon, Arctic char, whitefish, grayling), mammals (moose, bear, and beaver), and berries. The drainage also supports commercial salmon fisheries (Volume 1, Map 2) and is important habitat for waterfowl.

Commercial Fishing:

The Kwiniuk, Tubutulik, and Kwik River drainages are among the most important pink salmon spawning rivers in the region. ADF&G (1983) counted 251,965 pinks and 56,907 silvers in the Kwiniuk and 40,797 pinks and 16,345 silvers in the Tubutulik River in 1982. For that year, the Kwiniuk and Tubutulik Rivers were number one and three, respectively, for pinks and two and four for silvers in the region (Volume 1, Anadromous and Freshwater Fish). These river drainages are also important for waterfowl (Volume 1, Map 9).

Land Ownership and Management:

The major land owners are the native corporation for the village of Elim (surface and subsurface estate) and the federal government. State ownership is limited to navigable streams and the tidal and submerged lands out to the three-mile limit. Bering Straits Native Corporation ownership (surface and subsurface estate) is limited to a small portion on the upper reaches of the Kwiniuk River.

There is no site specific management plan for federal lands. State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan, adopted in 1969. The native corporation for the village of Elim should be contacted for appropriate land use policies applicable to village corporation lands (Appendix B).

4.4.2.9 GOLOVNIN BAY/LAGOON AND THE NIUKLUK AND FISH RIVER DRAINAGES

Reasons for Designation:

- Habitat
- Subsistence
- Mineral Development
- Commercial fishing
- Recreation

Habitat:

Golovnin Bay and Golovnin Lagoon, located on the southern coast of the Seward Peninsula, are important habitats for herring as well as boreal and pond smelt; sand lance; humpback, brood, and round whitefish; Bering and least cisco; Arctic char; saffron cod; starry and Arctic flounder; and tubenose, Bering, and sturgeon poachers (Baron 1976). The Niukluk River drainage supports an important habitat for moose in the region. In addition to serving as an important moose habitat, this area also supports thousands of birds which nest on the Fish River Delta. The entire north shore of Golovnin Lagoon consists of oil-sensitive delta marsh with extensive stands of sea grass.

Subsistence:

This area is an important subsistence area for the residents of Golovin, White Mountain, and Council. Villagers harvest fish (salmon and herring), shellfish (crab and clams), marine mammals (seals and beluga), kelp, and waterfowl from Golovin Lagoon and Bay (Volume 1, Map 2). The heavy use of the area by waterfowl and shorebirds between spring and fall makes this an important subsistence harvesting area. In addition to local subsistence use, this area is also utilized by subsistence hunters from the Nome area.

Mineral Development:

Several offshore mining permits were granted in Golovin Bay in the late 1970's (Gallagher, personal communication). Currently, the Department of Natural Resources is reviewing permits to see if documented deposits are present. If they are verified, the permits may be converted to leases.

Commercial Fishing:

The Fish and Niukluk rivers are also moderately important salmon streams. ADF&G aerial counts (1983) showed 20,077 chum in the Fish River and 8,888 chum in the Niukluk. Small numbers of kings and pinks were also recorded. The Golovin Bay subdistrict accounted for the second largest salmon catches in the region between 1978 and 1982, when an annual average of 92,000 fish were taken. Chums and pinks accounted for 51 and 47 percent of the catch, respectively. Commercial fishing, and potentially processing, provide an important component of the cash income in Golovin (Volume 1, Economic Resources).

Recreation:

The Niukluk River has road access from Council and is one of the most important sport fishing areas in the Seward Peninsula for grayling and Arctic char, as well as pink, chum and silver salmon (ADF&G 1985). Access to Fish River from the Niukluk River also makes it an easily accessible river for sport fishing. A sport lodge located on the Fish River at White Mountain caters to an international sport fishing clientele. Golovin Bay, Golovin Lagoon, and the Fish and Niukluk Rivers also provide moose hunting for Nome residents and hunters from outside the state.

Land Ownership and Management:

The major land owners are the native corporations for the villages of Golovin, White Mountain, and Council (surface estate), Bering Straits Native Corporation (subsurface estate), and the State government. Federal ownership is limited to small areas along the northeastern portion of the area. Golovin Bay and Lagoon contain extensive mining claims, leases, and permit in-holdings.

There is no site-specific management plan for federal lands. State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan, adopted in 1989. The native corporations for the villages of Golovin, White Mountain, and Council should be contacted for appropriate land use policies applicable to village and regional corporation lands (Appendix B).

4.4.2.10 ROCKY POINT TO TOPKOK HEAD

Reasons for Designation:

- **Habitat**
- **Subsistence**
- **Historic Site**

Habitat:

The area's marine waters are among the most productive in the region (Wolotira 1977). Offshore waters support the region's largest known concentrations of sand lance (Starr et al. 1981) which are a vital food source for fish-eating seabirds. The reproductive success for some seabirds largely depends on availability of sand lance. This stretch of coast along the southern shore of the Seward Peninsula contains the largest mainland seabird colonies in the region. At Bluff, the largest of the colonies, bird populations range between 40,000 and 90,000 (Drury 1980). Murres comprise about 75 percent of the nesting birds. These seabirds feed offshore near the colonies. Peregrine falcons nest at several locations along the cliffs.

Subsistence:

The eastern portion of this area provides important subsistence resources for the villages of Golovin and White Mountain. Herring spawn along the rocky shores, and salmon, capelin, king crab, and several species of bottom-fish range along the coast. Villagers catch herring and crab along the coast and gather eggs at several seabird colonies (Volume 1, Map 2).

Historic Sites:

This rich environment supported several villages, as evidenced by remaining house mounds and artifacts (Volume 2, Map 5-1). These sites are of cultural and historical importance to White Mountain and Golovin residents.

Land Ownership and Management:

The major landowners are the native corporations for the villages of Golovin and White Mountain (surface estate), Bering Straits Native Corporation (subsurface estate), and the federal government. State ownership is limited to the tidal and submerged lands out to the three-mile limit. Topkok Head and Bluff are within the Alaska Maritime National Wildlife Refuge.

Federal lands are limited to Topkok Head and will be managed in accordance with the Alaska Maritime National Wildlife Management Plan. State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan, adopted in 1989. The native corporations for the villages of Golovin and White Mountain should be contacted for appropriate land use policies applicable to village and regional corporation lands (Appendix B).

Other Land Uses:

Within this Important Use Area, mineral development is a potential use of coastal resources. Historic and on-going mining occurs in portions of this area.

4.4.1.11 SAFETY SOUND

Reasons for Designation:

- Habitat
- Subsistence
- Mineral Development
- Historic Site

Habitat:

This area along the northern shore of Norton Sound with its extensive marshes, tidelflats, and seagrass beds supports large flocks of nesting and feeding waterfowl and shorebirds. In spring and fall, large flocks of migrating waterfowl stop here to rest. Woodby and Divoky (1982) estimated that during their aerial surveys 28,000 birds occupied the Safety Sound area. A channel extending from Safety Sound to Bonanza River and the adjoining marshes and lagoons (including the Flambeau and Eldorado River wetlands) also hosts large flocks of summering geese, cranes, and ducks, especially in August and September (Drury 1980).

Safety Sound, an important nursery area for juvenile fish, receives the flow of the Flambeau and Eldorado Rivers which, along with the Bonanza and Solomon rivers to the east, support salmon, char, and grayling.

Subsistence:

Seals, moose, waterfowl, bird eggs, and fish, provide important subsistence resources for Nome and Solomon residents. Fishing and hunting camps are located along the rivers.

Mineral Development:

Mining occurs in the upper Eldorado River drainage and along the Solomon River drainage.

Historic Site:

There are numerous unexcavated archaeological sites dating back at least 3,000 years in this area (ADF&G 1985; Volume 2, Map 5-1). The City of Nome Coastal Management Program recommended designation of Safety Sound as an Area Meriting Special Attention (AMSA).

Land Ownership and Management:

The major landowners are the native corporations for the communities of Solomon and Nome (surface estate), Bering Straits Native Corporation (subsurface estate), and the State government. Portions of Safety Sound are within the Alaska Maritime National Refuge.

Federal lands are managed in accordance with the Alaska Maritime National Wildlife Refuge management plan. State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan, adopted in 1989. The native corporations for the communities of Solomon and Nome should be contacted for appropriate land use policies applicable to village and regional corporation lands (Appendix B).

4.4.2.12 NOME RIVER DRAINAGE

Reasons for Designation:

- **Habitat**
- **Subsistence**
- **Recreation**

Habitat:

This Important Use Area also includes the coastal waters extending one mile from the ordinary high water of the Nome River at its confluence with Norton Sound. Despite its small size, the Nome River is very productive system for fish. Biologists have documented 17 species of fish, including Arctic char, grayling, least cisco, round whitefish, slimy sculpin, ninespine stickleback, Bering cisco, and chum, pink, king, and silver salmon (ADF&G 1979). The lower 30 miles of the river provide spawning habitat for the four salmon species. The best spawning beds occur below "13 Mile Bridge" on Beam Road (21 miles upstream from the mouth) (ADF&G 1983).

More than 325,000 pink salmon were counted in the river in July 1982. Pink salmon escapements of 20,000 to 30,000 fish are common. Chum salmon escapement in 6 of the last 10 years has been greater than 2,000 fish, but in 1982 and 1983, observed chum salmon escapement was down sharply. While chum numbers have been declining, silver salmon have been increasing (ADF&G 1984).

Waterfowl frequent the Nome River watershed in spring and summer. Willow thickets along the shores provide browse and cover for moose and smaller game like rabbits and ptarmigan. The river's plume into Norton Sound attracts small fish which occasionally provide food for marine animals; a sea lion and a gray whale were observed feeding just off the mouth in 1983. Three seal species — bearded, ringed, and spotted — come near shore in the area, especially in spring and fall. King crab are available offshore in winter and spring.

Subsistence:

The Nome River, due to its proximity to Nome, is subject to competing fishery and subdivision uses which could conflict with habitat protection and subsistence. This area provides a large part of the subsistence resources used by Nome residents. Fish camps line the lower part of the river. Subsistence harvests of bear and moose also occur along the Nome River. Nome residents have harvested beluga whales, spotted seals, and young bearded seals at the mouth of the Nome River.

Recreation:

Though sport fishermen fish the upper reaches, the lower section from the Fort Davis Bridge to the mouth is the most important sport fishing section on the river (ADF&G 1985). Salmon and char comprise most of the catch. Moose and bear along the river are also harvested by sport hunters.

Cabin sites are being sold along the river's upper reaches. Several homes now occupy the riverbank in the upper part of the drainage. Increased residential use could put more pressure on fish stocks and sewage or wastewater from houses could contaminate the stream and reduce its productivity.

Land Ownership and Management:

The major landowners are the native corporation for the community of Nome (surface estate), Bering Straits Native Corporation (subsurface estate), private speculators, and holders of mining claims. State ownership is limited to small portions of navigable streams and the tidal and submerged lands out to three miles.

State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan, adopted in 1989. The native corporation for the City of Nome should be contacted for appropriate land use policies applicable to village and regional corporation lands (Appendix B).

Other Land Uses:

Within this Important Use Area, mineral development and on-going mining occurs throughout the Nome River valley and patented mining claims are located throughout the river drainage. The area is also an historic gold mining district.

4.4.2.13 McCARTHY'S MARSH

Reasons for Designation:

- Habitat
- Subsistence

Habitat:

This expansive marsh is in the interior of the Seward Peninsula, but it has been identified as an important waterfowl and shorebird habitat.

Subsistence:

Residents of Golovin and White Mountain hunt waterfowl in the marsh and take moose, bear, and caribou on the uplands surrounding the marsh. Because of its distance from the villages, this important productive area receives relatively light hunting pressure.

Land Ownership and Management:

Land ownership in the area is comprised solely of federal ownership and is managed by the Bureau of Land Management with no specific management plan. However, the northeast corner of the marsh falls within the Bering Land Bridge National Preserve and is managed in accordance with the Bering Land Bridge National Preserve Management Plan. The state owns the beds of navigable streams.

Other Land Uses:

Mineral development could occur within portions of this Important Use Area.

4.4.2.14 CAPE WOOLLEY

Reasons for Designation:

- Habitat
- Subsistence

Habitat:

Waterfowl and other shorebirds use Woolley Lagoon as a spring feeding, gathering, and resting area (Springer, personal communication). Wet tundra lowlands dotted with ponds and small creeks inland from the coast support nesting waterfowl (Hoodby and Divoky 1982).

Subsistence:

This stretch of coast along the southwestern Seward Peninsula is an essential subsistence area for King Islanders living in Nome. Each summer they occupy fish camps at the mouth of the Feather River. Salmon and other fish are harvested in the river and adjacent to the coast, and waterfowl are hunted along Woolley Lagoon and in surrounding wetlands. Subsistence hunters harvest bears encountered in the area, but hunters usually concentrate on walrus and seal found along the coast.

Land Ownership and Management:

The native corporation for the community of King Island (surface) and Bering Straits Native Corporation (subsurface) are the major landowners. State ownership is limited to navigable streams and the tidal and submerged lands out to three miles.

State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan, adopted in 1989. The native corporation for the community of King Island should be contacted for appropriate land use policies applicable to community and regional corporation lands (Appendix B).

4.4.2.15 LOST RIVER AREA

Reason for Designation:

- Mineral Development

Mineral Development:

This area at the western end of the Seward Peninsula contains the second largest known tin reserves in North America as well as major tungsten, fluorite, and beryllium deposits (Volume 1, Map 6). These impressive deposits are potentially more valuable than the total worth of all past placer gold production in the region. Based on drilling samples, geologists estimate that the deposits contain 38 million tons of ore (Eakins 1993), an amount sufficient to sustain excavation of 1,750,000 tons of ore per year over 16 years (DOI 1976).

Land Ownership and Management:

The major landowners are the native village corporations for the villages of Diomed and Brevig Mission Village (surface estate), Bering Straits Native Corporation (subsurface estate), and holders of private mining claims. State ownership is limited to navigable streams and the tidal and submerged lands out to three miles.

State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan, adopted in 1989. The native corporations for the villages of Diomed and Brevig Mission should be contacted for appropriate land use policies applicable to village and regional corporation lands (Appendix B).

4.4.2.16 PORT CLARENCE

Reasons for Designation:

- Habitat
- Subsistence

Habitat:

Port Clarence is the wintering grounds of large schools of herring and other marine fish (Volume 1, Map 8). Herring in particular are sensitive to contamination from petroleum and petroleum products. Port Clarence provides the best sheltered anchorage north of Dutch Harbor in the Aleutian Islands. Port development here would pose a serious threat to local herring stocks and other fish if an oil spill incident or chronic oil pollution occurred (Barton 1978).

Subsistence:

This area along the Seward Peninsula's western coast contains wetlands which support migrating waterfowl and shorebirds (Volume 1, Map 9). Residents of Brevig Mission and others residing along Port Clarence depend on this area for hunting (snow geese, migrating waterfowl, and cranes) and take salmon, beluga whales, walrus, and seals along the coast. Traditional fishing and hunting camps are located along the shoreline.

Land Ownership and Management:

The major landowners are the native village corporations for the villages of Brevig Mission and Teller (surface estate) and the Bering Straits Native Corporation (subsurface estate). State ownership is limited to the tidal and submerged lands out to three miles.

The native corporations for the villages of Brevig Mission and Teller should be contacted for appropriate land use policies applicable to village and regional corporation lands (Appendix B).

4.4.2.17 KUZITRIN RIVER DRAINAGE AND ASSOCIATED WETLANDS

Reason for Designation:

- Habitat

Habitat:

The Kuzitrin River originates in extensive wetlands in the southwest corner of the Bering Land Bridge National Preserve and flows through long, broad wetlands for miles before emptying into Imuruk Basin (Volume 1, Map 7). These wetlands are important waterfowl and shorebird habitat, and the drainage has been identified by ADF&G as one of the region's most important moose habitats.

Land Ownership and Management:

The major landowners are the native corporation for the community of Mary's Igloo (surface estate), Bering Straits Native Corporation (subsurface estate), the State government, and federal government.

State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan, adopted in 1989. Federal lands are managed in accordance with the Bering Land Bridge National Preserve Management Plan. The native corporation for the community of Mary's Igloo should be contacted for appropriate land use policies applicable to village corporation lands (Appendix B).

Other Land Uses:

Mineral development could occur within portions of this Important Use Area. The Kuzitrin River and tributaries within the drainage basin have supported historic and on-going gold mining activity.

4.4.2.18 AGLAPUK RIVER DRAINAGE

Reasons for Designation:

- Habitat
- Subsistence

Habitat:

The Agiapuk River and its major tributary, the American River, on the north side of Imuruk Basin, provide essential wildlife habitats. The Agiapuk drainage is one of the region's most important moose habitats. Salmon and Arctic char spawn in the drainage and char overwinter there. Waterfowl and shorebirds feed and nest in wetlands near the mouth of the Agiapuk River.

Subsistence:

Area residents harvest moose, waterfowl, salmon, and grayling in the drainage.

Land Ownership and Management:

The major landowners are the native corporations for the village of Brevig Mission and Teller (surface estate), the Bering Straits Native Corporation (subsurface estate), the federal government and the state government. State ownership includes the beds of navigable streams.

There is no site specific management plan for federal lands. State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan, adopted in 1989. The native corporations for the villages of Brevig Mission and Teller should be contacted for appropriate land use policies applicable to village and regional corporation lands (Appendix B).

4.4.2.19 GRANTLEY HARBOR, IMURUK BASIN, AND TUKSUK CHANNEL

Reasons for Designation:

- Habitat
- Subsistence

Habitat:

Grantley Harbor and Imuruk Basin (including Tucsuk Channel which connects them) are among the region's most productive marine fish habitats (Volume 1, Map 8). Imuruk Basin east of Port Clarence also serves as an important waterfowl nesting area and Grantley Harbor supports seabird colonies (Volume 1, Map 9). Extensive seagrass beds line much of Grantley Harbor, providing productive feeding and rearing areas for fish and diving ducks. Imuruk Basin is an important nesting habitat for shorebirds and waterfowl. Large flocks of Canada geese and cranes pass through the area in late summer (Woodby and Divoky 1982) and congregate here during spring and fall migrations (Volume 1, Birds).

Subsistence:

Herring, salmon, Arctic char, smelt, whitefish, tomcod, and marine mammals are important subsistence resources harvested from the area by local residents. Herring spawn in Grantley Harbor and Port Clarence in late June through early July (Barton 1978). Herring support subsistence and commercial fisheries. Based on trawl surveys in 1976, in addition to providing habitat for juvenile and adult herring, Grantley Harbor and Imuruk Basin provide

habitat for juvenile pink and chum salmon (only chum in Grantley Harbor); boreal and pond smelt; sandlance (particularly important to fish-eating seabirds); humpback, broad, and round whitefish; Bering and least cisco; Arctic char; salmon cod; capelin; rock greenling; Alaska plaice; starry and Arctic flounder (only starry flounder in Imuruk Basin); nine- and three-spine sticklebacks; and tubenose poachers in Grantley Harbor (Barton 1978). These marine fish serve as important links in the marine food chain, which supports the area's subsistence economy.

Port Clarence, with one of the region's two deepwater ports, was identified by Woodward-Clyde (1984) as potentially important if commercial quantities of hydrocarbons are discovered in Norton Sound. Development would result in an increase of marine traffic, support facilities, and attendant noise, disruption, and potential oil pollution. Many of the marine species that inhabit the area's waters are sensitive to oil contamination and disturbance. Barton (1978) demonstrated that oil from a spill incident could travel from Port Clarence into Imuruk Basin.

Land Ownership and Management:

The major landowners are the native village corporations for the villages of Brevig Mission, Teller, and Mary's Igloo (surface estate), Bering Straits Native Corporation (subsurface), the federal government, and the State government. State ownership includes tidal lands and the beds of navigable streams.

There is no site-specific management plan for federal lands. State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan, adopted in 1989. The native corporations for the village of Brevig Mission, Teller, and Mary's Igloo should be contacted for appropriate land use policies applicable to village and regional corporation lands (Appendix B).

Other Land Uses:

Mineral development could occur within portions of this Important Use Area where there is potential for mining of gold.

4.4.2.20 PILGRIM RIVER AND SALMON LAKE

Reasons for Designation:

- Habitat
- Subsistence
- Land Disposal
- Geothermal Development
- Recreation

Habitat:

The region's only known sockeye (red) salmon run and the northernmost run in the state occurs in the Pilgrim River-Salmon Lake system. Red salmon enter Port Clarence and travel through Grantley Harbor and the Imuruk Basin before making their way up the Kuzutrin and Pilgrim Rivers to Salmon Lake. Many fish are intercepted in Grantley Harbor and the Imuruk Basin before they spawn. The number of red salmon in Salmon Lake over the past 10 years has averaged 748 (C. Lean, personal communication). Although ADF&G regulations prohibit salmon fishing at Salmon Lake, enforcement is not actively pursued. Dames and Moore (1980) projected that the small red salmon run will continue to dwindle if harvests continue at the current level.

Subsistence:

The Pilgrim Hot Springs-Salmon Lake area is an important subsistence moose hunting area due to easy access along the Kougarok-Nome road and high moose populations.

Land Disposals:

The Department of Natural Resources has proposed disposal of land along the Pilgrim River and the Grand Central River for the homestead program and a subdivision. It is anticipated that homes will be built as seasonal, recreational homesites. Residential development could result in increased hunting pressure and a decline in the local moose and fish populations.

Geothermal Development:

Pilgrim Hot Springs has been identified as having geothermal potential (Volume 1, Energy and Fuel). Information from the Alaska Power Authority indicates that the potential as a heat generation source may be limited.

Recreation:

The Pilgrim Hot Springs-Salmon Lake area is an important recreational moose hunting area due to easy access along the Kougarok-Nome road and high moose populations. The entire area has tremendous recreational potential (C. Lean, personal communication).

Land Ownership and Management:

The major landowners are the native village corporation for the village of Mary's Igloo (surface estate), the Bering Straits Native Corporation (surface and subsurface estates), the State government, and the federal government. State ownership includes the beds of navigable streams.

There is no site-specific management plan for federal lands. State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan, adopted in 1989. The native corporation for the village of Mary's Igloo should be contacted for appropriate land use policies applicable to village and regional corporation lands (Appendix B).

4.4.2.21 BREVIG LAGOON

Reason for Designation:

- Subsistence

Subsistence:

Brevig Lagoon is an essential subsistence area for the people of Brevig Mission (Volume 1, Map 2). Subsistence resources harvested include waterfowl, herring, and salmon. The lagoon, with its extensive sheltered marshes and tidelands, is also an important molting area for oldsquaws (Woodby and Divoky 1982).

Land Ownership and Management:

The native corporation for the village of Brevig Mission holds title to surface lands in the area, and the Bering Straits Native Corporation controls subsurface lands. The State owns tidal and submerged lands out to the three-mile limit. Portions of Brevig Lagoon are within the Alaska Maritime National Wildlife Refuge.

The Alaska Maritime National Wildlife Refuge is managed under the refuge management plan. State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan, adopted in 1989. The native corporation for the village of Brevig Mission should be contacted for appropriate land use policies applicable to village and regional corporation lands (Appendix B).

4.4.2.2 LOPP LAGOON/CAPE PRINCE OF WALES

Reasons for Designation:

- Habitat
- Subsistence

Habitat:

Located at the western end of the continental divide, the Cape Prince of Wales coast consists of rocky, mostly barren, steep terrain with the village of Wales located at its tip. Sea cliffs extend from Wales to Tin City. Lopp Lagoon is one of the primary shorebird nesting areas in the region (Wright 1979).

Subsistence:

The Lopp Lagoon-Cape Prince of Wales area provides important resources for the people of Wales. Residents harvest crab, salmon, beluga whale, bowhead whale, walrus, seal, and polar bear in offshore areas and salmon, shellfish, waterfowl, and moose in the Lopp Lagoon area.

Land Ownership and Management:

The major landowners are the native corporation for the village of Wales (surface estate), the Bering Straits Native Corporation (subsurface estate), the state government, and the federal government. State ownership includes tidal lands out to three miles and the beds of navigable streams. Portions of Lopp Lagoon are within the Alaska Maritime National Wildlife Refuge and the Bering Land Bridge National Preserve.

Federal lands are managed in accordance with the Bering Land Bridge National Preserve Management Plan and the Alaska Maritime National Wildlife Refuge Management Plan. State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan, adopted in 1989. The native corporation for the village of Wales should be contacted for appropriate land use policies applicable to village and regional corporation lands (Appendix B).

4.4.2.3 IKPEK LAGOON AND NUKLUK, PINGUK, KAGUERAK, AND KUGRUPAGA DRAINAGES

Reasons for Designation:

- Habitat
- Subsistence

Habitat:

These drainages on the northern side of the Seward Peninsula are part of an important migratory shorebird and waterfowl resting and feeding area. This Important Use Area also includes the coastal waters of Ikpek Lagoon. The rivers and the lagoon and the barrier islands at their mouths along this stretch of coast provide the only extensive sheltered water between the Arctic Ocean and the Yukon River delta. Consequently, migrating shorebirds and waterfowl use it extensively. The area is unusually productive for this latitude (Fortenberry 1974.)

Subsistence:

Villagers from Shishmaref hunt waterfowl and moose and fish for salmon along these rivers and their tributaries.

Land Ownership and Management:

The major landowners are the state and federal governments. State ownership includes tiday lands to the three-mile limit and the beds of navigable rivers.

Large portions of the federal lands are encompassed by the Bering Land Bridge National Preserve and are managed in accordance with the Bering Land Bridge National Preserve Management Plan. State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan, adopted in 1989.

4.4.2.24 ARCTIC RIVER DRAINAGE

Reasons for Designation:

- Subsistence
- Mineral Development

Subsistence:

The Arctic River drainage is an important waterfowl and salmon harvest area for Shishmaref residents (Volume 1, Map 2). This Important Use Area also includes the coastal waters extending one mile from the ordinary high water of the Arctic River at its confluence with Shishmaref Inlet. Wetlands in the lower part of the drainage are important waterfowl and shorebird habitat (Volume 1, Map 9).

Mineral Development:

Ten placer mining sites and one lode mine are located in the upper reaches of the watershed (Volume 1, Map 6). Ear Mountain may contain major mineral deposits. Mining operations could impose adverse impacts on the resources in the Arctic River.

Land Ownership and Management:

The major landowners are the native corporation for the village of Shishmaref (subsurface estate), the Bering Straits Native Corporation (subsurface estate), and the state and federal governments. State ownership includes the beds of navigable streams.

Federal lands are managed in accordance with the Bering Land Bridge National Preserve Management Plan. State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan, adopted in 1989. The native corporation for the village of Shishmaref should be contacted for appropriate land use policies applicable to village and regional corporation lands (Appendix B).

4.4.2.25 SERPENTINE RIVER DRAINAGE

Reasons for Designation:

- Habitat
- Subsistence
- Historic Site

Habitat:

The Serpentine River drainage is one of the important moose habitats in the region (Volume 1, Map 10 and Land Mammals). This Important Use Area also includes the coastal waters extending one mile from the ordinary high water of the Serpentine River at its confluence with Shishmaref Inlet. The river supports salmon, Arctic char, and grayling, and wetlands along the lower end of the drainage provide important habitat for waterfowl and shorebirds.

Subsistence:

The Serpentine River drainage provides Shishmaref residents with moose, waterfowl, and fish (Volume 1, Map 2).

Historic Site:

Serpentine Hot Springs, located at the headwaters of the Serpentine River, is an important traditional historic site and a contemporary spiritual site for Shishmaref residents. To protect traditional use in their area, Shishmaref residents are working with the National Park Service (NPS) to provide for unrestricted use and possible ownership of traditional areas.

Land Ownership and Management:

The major landowners are the native corporation for the village of Shishmaref (surface estate), the Bering Straits Native Corporation (subsurface estate), and the federal government. State ownership is limited to navigable streams and the tidal and submerged lands out to three miles.

Federal lands are managed in accordance with the Bering Land Bridge National Preserve Management Plan. State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan, adopted in 1989. The native corporation for the village of Shishmaref should be contacted for appropriate land use policies applicable to village and regional corporation lands (Appendix B).

Other Land Uses:

Mineral development could occur within portions of this Important Use Area. There is potential for tin and gold in portions of the Serpentine River drainage.

4.4.2.26 ALASKA MARITIME NATIONAL WILDLIFE REFUGES

Reasons for Designation:

- Habitat
- Subsistence

Habitat and Subsistence:

The region contains several components of the Alaska Maritime National Wildlife Refuge (AMNWR) system; some of these areas include portions of other Important Use Areas. This refuge was designated by Congress to protect essential marine mammal and seabird habitats which provide an important source of the region's subsistence resources. The refuge contains islands, reefs, rock spires, and capes including: the islands of Egg, Besboro, Sledge, Carolyn, King, Little Diomedea, Whale, Beulha, Sarichef, St. Lawrence, Punuk, Stuart, Channel, and Eider Duck, Capes Denbigh, Day, Stephens, and York, Bluff, and Topkok Head; islands in Shaktoolik and Malikik Bays, Beeson Slough, Safety Sound, and Shishmaref Inlet (within AMNWR); Bravig and Loop Lagoons, Safety Sound, and Shishmaref Inlet Barrier Islands; Kotzebue Creek; and Fairway, Youghapoot, and Stolbi Rocks (Volume 1, Map 5).

Land Ownership and Management:

Pursuant to the Alaska National Interest Lands Conservation Act of 1980, unless designated as refuge lands prior to 1980, refuge lands conveyed to Native corporations are considered to be private in-holdings, not refuge lands. Such in-holdings are not subject to refuge laws, regulations, policies, or management. The appropriate native corporation should be contacted to ascertain land use policies applicable to village and regional corporation lands (Appendix B).

In many instances, entire portions of the refuge have been selected or conveyed to Native Corporations (for example, St. Lawrence Island, King Island, Little Diomed Island, Stuart Island, and Cape Denbigh). Lands selected by Native corporations are managed as refuge lands. However, before any activity can be authorized on these lands, approval from the Native corporation(s) selecting the land must be sought. Any Native Corporation selections within the boundaries of the refuge which are subsequently relinquished (rather than conveyed) will remain refuge lands.

The following lands have been conveyed to Native corporations in the region and constitute a complete in-holding within the Refuge boundary: Carolyn, King, Little Diomed, Sarichef, Penuk, St. Lawrence, Stuart, Channel, and Elder Duck Islands; Cape Denbigh; Islands in Shaktoolik and Malilik Bays, Safety Sound, Shishmaref Inlet (within AMNWR) and Bravig Lagoon; Kotzebue Creek; Cape York; and Fairway, Youghapott, and Stolbi Rocks. The above lands are not subject to management by the federal government.

The following lands have been selected by Native corporations, and, upon conveyance, will constitute a complete in-holding within Refuge lands: Egg, Besboro, and Sledge Islands; Islands in Beeson Slough; and Bluff. Until conveyed, the above lands are under federal management and are managed in accordance with the Alaska Maritime National Wildlife Refuge Management Plan.

Two-thirds of Cape Darby has been conveyed to Native corporations, with the remaining one-third selected by Native corporations.

Lopp Lagoon Barrier Islands are a combination of lands conveyed and selected by Native corporations and refuge lands held in federal ownership. Upon full conveyance of selected lands, Native corporations will hold a significant, but not complete in-holding in this this refuge component.

Topkok Head, Cape Stephens, and Whale and Beulha Islands will remain exclusively in federal ownership. They will be managed in accordance with the management plan for the Alaska Maritime National Wildlife Refuge.

4.4.2.7 SOLOMON RIVER DRAINAGE

Reasons for Designation:

- ♦ Habitat
- ♦ Subsistence
- ♦ Historic Sites
- ♦ Mineral Development

Habitat:

This Important Use Area includes the drainage of the Solomon River upstream from the Safety Sound Important Use Area. The Solomon River provides important habitats for salmon, Arctic char, grayling, and moose.

Subsistence:

Residents of the community of Solomon are dependent upon salmon, Arctic char, grayling, and moose from the Solomon River drainage for subsistence resources.

Historic Site:

The Solomon River drainage is an historic gold mining district.

Mineral Development:

The Solomon River drainage is recognized for its rich mineral potential and on-going mining activities.

Land Ownership and Management:

The major landowners are the Solomon Native Corporation (surface estate), Bering Straits Native Corporation (subsurface estate), private landowners, and the State government.

State lands are managed in accordance with the Department of Natural Resources Northwest Area Plan, adopted in 1989.

Chapter 5: Policies

5.1 INTRODUCTION

The policies presented in this chapter are the "enforceable rules" of the Bering Straits CRSA coastal management program. Land and water uses and activities occurring on state and private lands, and federal actions which directly affect habitats or resources within the Bering Straits CRSA coastal boundary are subject to the policies of the coastal management program. Uses and activities must comply with applicable coastal management policies to be considered "consistent" with the district's coastal management program. All parties participating in the consistency determination process will use these policies as the standards for evaluating consistency.

Policies presented in this section are designed to clearly identify "performance standards" for the protection of important resource values and uses, and to provide for orderly and balanced utilization of all coastal resources. The policies are intended to provide protection and management guidance for coastal resources during the planning, design, construction, and operational phases of coastal development (uses and activities) in preference to after-the-fact enforcement and compliance actions. Additionally, the policies provide clear guidance of the Board's intent while recognizing the need for some flexibility in making consistency determinations. Activities and uses subject to a consistency determination must clearly show compliance with the coastal management policies. The application of policies in making a consistency determination cannot restrict uses of state concern without addressing Coastal Policy Council requirements for restricting such uses of state concern.

In addition to identifying performance standards, some policies request supplemental information needed by the CRSA Board or state agencies to evaluate "performance" during the consistency determination process. This requested information is in addition to general project information, as identified in Chapter 6, Implementation.

The guidance and standards provided by the policies are the culmination of the coastal management program and the synthesis of the Bering Straits CRSA concerns and objectives. Preparation of these policies included five major steps accomplished during development of the district program:

- Evaluation and application of the Issues, Goals, and Objectives (Chapter 2);
- Review of the Resource Inventory (Volume 1) and Resource Analysis (Volume 2), with input from the public participation process (Chapter 3);
- Review, evaluation, and modification of appropriate policies from earlier Bering Straits CRSA program documents and other coastal management programs;
- Review of the Alaska Coastal Management Program Standards and Guidelines requirements and organization of the policies to reflect these requirements (6 AAC 80 and 6 AAC 85); and
- Preparation of policies.

The products of this process are the Bering Straits CRSA policies which recognize coastal resource values and use areas important to the Bering Straits CRSA residents. The protection of subsistence resources and habitats, and the maintenance of the subsistence way of life are the foundation for preserving traditional cultural values and the community and regional economy. The Bering Straits CRSA policies attempt to balance economic development with maintenance of the Native culture and subsistence economy.

Policies apply to the entire area within the coastal boundary. Some of the policies are area-specific, pertaining to resource values or concerns only in identified areas where the resources or uses occur (for example, anadromous

fish streams, marine mammal haul-out sites, important use areas for subsistence). In addition to enforceable policies, several administrative policies for the Bering Straits CRSA Board have been included. Although the administrative policies are recognized as "unenforceable", they are intended to provide direction to the CRSA Board and express the Board's desires with respect to planning, coordination, and notification.

5.2 DEFINITIONS

The following definitions are applicable to terminology used in policies for the Bering Straits CRSA coastal management program.

Active Floodplain of Watercourses:

The portion of a floodplain that is periodically inundated or encompassed by a mean annual flood ($Q = 2.33$ flood frequency) and is characterized by active flowing channels, high water channels and adjacent unvegetated or sparsely vegetated bars. The term " $Q = 2.33$ flood frequency" means the flood that occurs every 2.33 years on the average.

Affected Community(ies):

To include appropriate city councils, IRA/traditional councils, and village corporations. Affected communities are identified in Appendix B.

Avoid:

To prevent from occurring.

Essential Habitats:

Areas which support essential life history requirements of fish or wildlife species. These essential areas encompass one or more of the following: (1) pupping, calving, colonial nesting, spawning, rearing, wintering, migration, important feeding, and haul-out areas; (2) highly productive breeding and nesting areas; (3) sites providing unique population elements including high seasonal use and concentration areas or isolated occurrences; (4) habitats and use areas regularly associated with endangered species; (5) unique ecological systems; and (6) areas supporting a large portion of the individuals or species of a fish or wildlife population in the region during specific seasons.

Feasible and Prudent:

Consistent with sound engineering practice and not causing environmental, social, or economic problems that outweigh the public benefit to be derived from compliance with the standard which is modified by the term "feasible and prudent". An alternative is feasible unless it is inconsistent with sound engineering practice. An alternative is prudent despite the presence of increased social, environmental, or economic costs, unless those costs are of extraordinary magnitude, and are due to unique factors present in a particular case.

Fish and Wildlife Resources:

To include all aquatic and marine finfish and shellfish, and all resident and migratory wildlife and marine mammals in the Bering Straits CRSA.

Maintain:

To provide for continuation of current conditions and functions.

Minimize:

To select from a comprehensive review of alternatives the option which uses the most effective technology to limit or reduce impact to the smallest amount, extent, duration, size, or degree.

Plants:

To include all terrestrial, aquatic, and marine plants in the Bering Straits CRSA.

Significant Impact:

Likely to have an influence or effect greater than that attributable to mere chance. Section 46.40.210(5) of the Alaska Coastal Management Act defines a "use of direct and significant impact" as a use, or an activity associated with the use, which proximately contributes to a material change or alteration in the natural or social characteristics of a part of the state's coastal area and in which:

- a) the use, or activity associated with it, would have a net adverse effect on the quality of the resources of the coastal area;
- b) the use, or activity associated with it, would limit the range of alternative uses of the resources of the coastal area; or
- c) the use would, of itself, constitute a tolerable change or alteration of the resources within the coastal area but which, cumulatively, would have an adverse effect.

Water-Dependent:

A use or activity which can be carried out only on, in, or adjacent to water areas because the use requires proximity or close access to the water body.

Water-Related:

A use or activity which is not directly dependent upon proximity or access to a water body but which provides goods or services that are directly associated with water dependence. If this use or activity is not located adjacent to a water body, it could result in a loss of quality in the goods or services offered.

Wetlands:

Those areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation adapted for life in saturated soil conditions.

5.3 POLICIES

The following policies apply to all activities and uses of coastal lands and waters within the General Use Area of the Bering Straits CRSA.

A. SUBSISTENCE

A-1 Subsistence Use

Subsistence use of the coastal lands and waters of the Bering Straits CRSA has traditionally been the primary and highest priority use of all lands and waters within the coastal management plan area; therefore, all other land/water uses and activities shall ensure that through careful planning, development, and operation of a resource extraction or development project, all steps will be taken to mitigate adverse impacts to subsistence resources and their use in accordance with Policy F-2.

A-2 Planning Processes (Administrative Policy)

Where uses and activities may have a significant adverse impact on subsistence resources and activities, the Bering Straits CRSA Board shall work, if requested, with affected communities and resource-dependent users to identify subsistence resource concerns and to develop appropriate mitigative measures and stipulations for development activities, in accordance with the procedures identified in Chapter 6, Implementation.

A-3 Access

Traditional and customary access to subsistence use areas shall be maintained unless reasonable alternative access is provided for subsistence users.

A-4 Impacts on Subsistence

Within Important Use Areas identified for subsistence resources and activities in Chapter 4, entities proposing non-subsistence uses or activities shall locate such uses and activities at alternative sites outside the identified areas. Where location in alternative sites is not feasible and prudent, uses and activities shall minimize adverse impacts to subsistence resources, subsistence activities, and coastal habitats.

A-5 Impact Research

Major projects listed in Chapter 6.7 shall assimilate existing resource information and, where necessary, project applicants shall collect data to provide adequate information for identification and mitigation of adverse impacts to subsistence resources and activities in Important Use Areas identified in Chapter 4.

A-6 Subsistence Conflicts with Recreation

Recreational fishing and hunting access routes, facilities, and associated activities subject to permits and approvals shall be sited, constructed, and operated to minimize adverse impacts to subsistence activities.

B. HABITAT AND BIOLOGICAL RESOURCE PROTECTION

B-1 Habitat Alteration

Development activities and facility sites shall meet, at a minimum, the criteria established under State regulations (8 AAC 80.130) and Policies B-2 through B-10. Uses and activities that do not conform with Policies B-2 through B-10 may be allowed if: (1) there is a significant public need for the activity, (2) there are no feasible

and prudent alternatives to meet the public need which would conform to the ACMP standards and other applicable policies in this section, and (3) all feasible and prudent steps to maximize conformance with the policies have been taken.

B-2 Habitat Maintenance

All habitats shall be managed to maintain or enhance the biological, chemical, and physical characteristics of the habitat which contributes to its capacity to support living resources.

B-3 Offshore Areas

Offshore areas shall be managed as a conservation zone in order to maintain or enhance subsistence, commercial, and sport fisheries and subsistence harvests.

B-4 Estuaries

Estuaries shall be managed to assure adequate water flow, natural circulation patterns and nutrient and oxygen levels, and to avoid the discharge of toxic wastes or silt and the destruction of productive habitats. These habitats shall be managed to maintain or enhance commercial, subsistence, and sport fisheries and subsistence harvests.

B-5 Wetlands and Tidelands

Wetlands and tidelands shall be managed to assure adequate water flow, nutrients, and oxygen levels, and to avoid adverse changes in natural drainage patterns, the destruction of important or essential habitats, and the discharge of toxic substances.

B-6 Rocky Islands and Seacliffs

Rocky islands and seacliffs shall be managed to avoid the harassment of wildlife, the destruction of important or essential habitats, and the introduction of competing or destructive species or predators.

B-7 Barrier Islands and Lagoons

Barrier islands and lagoons shall be managed to maintain adequate flows of sediments, detritus, and water, to avoid the alteration or redirection of wave energy which would lead to unnatural deposition in lagoons or the erosion of the islands, and to discourage activities which would decrease their use by coastal species including polar bears and birds.

B-8 High Energy Coasts

High energy coasts shall be managed to assure the adequate mixing and transport of sediments and nutrients, and to avoid the redirection or interruption of transport processes and wave energy.

B-9 Rivers, Lakes, and Streams

Rivers, lakes, and streams shall be managed to protect natural vegetation, water quality, important and essential habitats, and natural water channels and flows necessary for maintenance of fish and wildlife habitats.

B-10 Upland Habitats

Important and essential habitats in upland areas shall be managed to maintain natural drainage patterns, surface and ground water quality, and natural ground-water recharge areas. Alteration of vegetation shall be minimized to prevent excessive run-off, hydraulic or thermal erosion, or decreased biological productivity.

B-11 Instream Flow

Except for public water supplies and domestic use, appropriation of water from rivers, streams, lakes, or wetlands shall not decrease instream flow below the amount determined necessary by the Alaska Department of Fish and Game and/or U.S. Fish and Wildlife Service to protect fish habitat and production and waterfowl habitat unless, in accordance with AS 4B.15, the Commissioner of the Alaska Department of Natural Resources makes a finding based on public review that (1) the competing use of water is in the best public interest, and (2) no feasible and prudent alternative exists. Where a water appropriation, or the cumulative impact of more than one water appropriation, has the potential to decrease instream flow below the amount necessary for fish and waterfowl habitat and production, project applicants shall be required to provide the data necessary to determine instream flow.

B-12 Fish Passage

- B-12.1** Development activities, facilities, and structures shall be designed, sited, constructed and operated in a manner which does not impede or interfere with timely access to spawning streams by adult anadromous fish or movements of juvenile anadromous fish.
- B-12.2** All temporary and permanent drainage structures constructed across anadromous fish streams, including multiple channels within the annual floodplain, shall provide for free and unrestricted movement of adult, fry, and juvenile anadromous fish which are present in the stream in accordance with the following criteria:
- Culverts shall be placed in and aligned with the natural stream channel and installed so that at least one-fifth of the diameter of each round culvert and at least six inches of the height of each elliptical or arch culvert is installed below the streambed at both the inlet and outlet of the drainage structure.
 - Culverts shall be designed to accommodate upstream movement of the slowest swimming anadromous fish species or age class using the watercourse.

B-13 Maintenance of Stream Characteristics

All permanent bridges and culverts shall, to the extent feasible and prudent, be positioned to avoid changing the direction and velocity of the stream flow. Drainage structures shall be adequately sized to accommodate the best available estimate of the 25-year peak discharge without significantly interfering with volume, velocity, sediment transport, or substrate characteristics of the stream where these properties are important to the uses of the stream.

B-14 Use of Explosives

To protect fish, explosives shall not be detonated within, beneath, or adjacent to marine, estuarine, or fresh waters that support fish unless the detonation of the explosives produces or is likely to produce an instantaneous pressure change in the water body of no more than 2.5 psi (pounds per square inch), or produces or is likely to produce a peak particle velocity greater than 0.5 ips (inches per second) in a spawning bed during the early stage of egg incubation. Setbacks from fish-bearing waters shall be required to insure that buried explosive charges meet the criteria shown in Table 5-1 (Distance to Fish-Bearing Waters) and Table 5-2 (Distance to Spawning Beds). These criteria do not apply if the water body, including its substrate, is frozen or if no fish are present.

TABLE 5-1: DISTANCE TO FISH-BEARING WATERS FOR VARYING WEIGHTS OF EXPLOSIVES¹

Material	Explosive Charge Weight (in pounds) ²							
	1	2	5	10	25	100	500	1000
Rock, Frozen Soil	35	50	80	110	175	350	780	1100
Ice	30	40	70	95	150	300	670	950
Saturated Soil	25	35	60	80	130	250	570	810
Unsaturated Soil	20	30	50	70	105	210	470	670

TABLE 5-2: DISTANCE TO SPAWNING BEDS FOR VARYING WEIGHTS OF EXPLOSIVES¹

	Explosive Charge Weight (in pounds)							
	1	2	5	10	25	100	500	1000
Distance (in all soil materials)	40	55	85	120	190	380	850	1200

¹ Straight line distance in feet from center of confined buried charge to waterbody.

² The scaled distance relationships set forth in Tables 5-1 and 5-2 above apply to single shots of a given weight of explosives or single shots in a multiple charge if each charge is separated by an eight millisecond or longer delay.

SOURCE: Alaska Department of Fish and Game, Habitat Division - January 1986.

B-15 Water Intake Structures

Where water removal has been authorized from rivers, lakes, streams, or wetlands occupied by fish, the intake structure shall be designed, operated, and maintained to prevent entrainment or impingement of fish. Site specific requirements for water intake structures in anadromous fish waters shall comply with the screening and maximum velocity criteria presented in Table 5-3.

B-16 In-water Facilities and Structures

To the extent feasible and prudent, structures and facilities constructed in or over rivers, streams, lakes, wetlands, tidelands, or marine waters shall be located, designed, and constructed to:

- (a) avoid degradation of water quality;
- (b) avoid obstructions to fish and wildlife migration, spawning, and rearing; and
- (c) avoid obstructions to navigation, commercial fishing, and subsistence harvest activities.

B-17 Snow Removal from Waterbodies

Snow shall not be removed or compacted on ice cover overlying waterbodies which support fish except for perpendicular crossings of frozen streams, as approved by the Alaska Department of Fish and Game.

TABLE 3-3: MAXIMUM ALLOWABLE SCREEN MESH SIZE AND WATER VELOCITIES THROUGH A SCREENED INTAKE FOR SMALL WATER WITHDRAWALS

Criteria	Group I	Group II	Group III	Group IV	Group V
screen mesh in:					
inches	0.4	0.04	0.1	0.25	0.25
(millimeters)	(1.0)	(1.0)	(2.4)	(6.4)	(6.4)
water velocity *	0.1	0.5	0.5	2.0	---
(feet per second)					

Group I - Fry Stage: whitefish

Group II - Juvenile Stage: smelt, whitefish

+ Fry or Juvenile Stage: sheefish, pink salmon, chum salmon

Group III - Juvenile Stage: coho, chinook, and sockeye salmon; Arctic char, Dolly Varden

Group IV - Adult Stage: whitefish, Arctic char, Dolly Varden

Group V - Adult Stage: chinook, coho, sockeye, chum, and pink salmon; criteria shall be used to prevent entrapment of Group V fish in off-stream pumping ponds; velocity criteria are not applicable.

* Water velocity as measured on the downstream side of the water intake enclosure.

SOURCE: Alaska Department of Fish and Game, Habitat Division - January 1986

B-18 Marine Mammal Haul-outs and Seabird Colonies

Seabird colony sites and haul-outs and rookeries used by walrus, sea lions, and seals (Volume 1, Map 10, or as updated in the ADF&G Regional Habitat Management Guides) shall not be physically altered or disturbed by structures or activities in a manner that would preclude or significantly interfere with continued use of these sites. Development structures and facilities shall maintain a one-half mile buffer from identified use areas for walrus, sea lions, seals, and seabirds. Land and water activities with high levels of acoustical or visual disturbance shall, to the extent feasible and prudent, be conditioned in appropriate permits, leases, and plans of operation to prohibit these activities within:

- (a) one-half mile of walrus or sea lion haul-outs from May 1 through December 31;
- (b) one-half mile of seal haul-outs from March 1 through September 30; and
- (c) one mile of seabird colonies from April 15 through September 30.

B-19 Disturbance by Aircraft

To minimize adverse disturbances to seabird colonies (Volume 1, Map 10, or as updated in the ADF&G Regional Habitat Management Guides), fixed-wing and helicopter aircraft shall maintain a minimum altitude of 2,000 feet or a 1.5 mile horizontal distance from identified colony sites between April 15 and September 30. To minimize adverse disturbances to walrus, sea lion, and seal haul-out sites (Volume 1, Map 10, or as updated in the ADF&G Regional Habitat Management Guides), fixed-wing and helicopter aircraft shall maintain a minimum altitude of 2,000 feet or a one-half mile horizontal distance from identified haul-out sites between May 1 and December 31 for walrus and sea lions, and between March 1 and September 30 for seals.

These conditions shall not be applicable where safety, weather conditions, or authorized destination within the area of concern dictate otherwise.

B-20 Reindeer Fawning Areas

Development activities shall minimize disturbance to the primary reindeer fawning areas shown in Volume 1, Map 10, during the fawning period from April 15 through May 15. Development activities and uses shall maintain the integrity and function of authorized and permitted reindeer fawning areas and shall not preclude access to fawning areas. The Bering Straits CRSA Board shall annually provide supplemental information concerning currently used reindeer fawning areas to the state and federal resource agencies.

B-21 Endangered Species

Development activities shall not cause significant impacts to the habitats or populations of the endangered bowhead whale, gray whale, peregrine falcon, or other designated endangered species identified by the state or federal governments.

C. AIR, LAND, AND WATER QUALITY

C-1 State and Federal Regulations

State and federal statutes, regulations, and procedures pertaining to the protection of air, land, and water quality are incorporated into the Bering Straits CRSA coastal management program.

C-2 Water Quality Standards

- C-2.1** Domestic and public water supplies, fresh and marine waters important for the growth and propagation of fish, wildlife, and plants, and waters used for recreation shall be classified by the Alaska Department of Environmental Conservation (ADEC) for water quality standards necessary to maintain or enhance these uses. Reclassification of waters shall be made through ADEC amendment procedures.
- C-2.2** All permits, leases, or plans of operation for land and water uses which may directly affect water quality shall require that these activities be sited, designed, constructed, and operated to provide a reasonable assurance that discharges will meet state and federal water quality standards for the receiving water use criteria.

C-3 Environmental Protection Technology

To the extent feasible and prudent, equipment and procedures utilizing the most effective technology for limiting emissions and effluents, and for the storage, handling, cleanup, and disposal of oil and other toxic substances shall be required for industrial, military, energy, and transportation facilities.

C-4 Hazardous Materials and Toxic Substances

C-4.1 Planning Processes (Administrative Policy)

The Bering Straits CRSA Board shall work, if requested, with entities proposing treatment, storage, transportation, or disposal of hazardous materials or toxic substances to provide the Bering Straits CRSA Board, affected communities, Native corporations, and appropriate landowners the opportunity to participate in the planning process for the treatment, storage, transportation, or disposal of hazardous materials or toxic substances, in accordance with the procedures identified in Chapter 6, Implementation.

- C-4.2** Storage, transportation, cleanup, and disposal of hazardous materials and toxic substances, petroleum, and petroleum products shall comply with state regulations and federal regulations, including provisions for public notice and public participation.
- C-4.3** Hazardous materials, toxic substances, petroleum, or petroleum products as defined in State and federal regulations, shall not be disposed of on barrier islands, on sea ice, in marine waters, or in any rivers, streams, lakes, or wetlands in the region.

C-5 Siting of Facilities (Administrative Policy)

The Bering Straits CRSA Board shall work, if requested, with developers of proposed industrial facilities to evaluate emissions and effluent dispersion, and assist in the siting of industrial facilities, in accordance with the procedures identified in Chapter 8, Implementation.

C-6 Cumulative Impacts

The cumulative impacts of new industrial development on the air and water quality of the district shall be considered in the review of proposed development projects. The cumulative effects on ambient air and water quality from proposed development projects shall meet all applicable requirements of State and federal laws and regulations.

C-7 Refuse Disposal

State requirements for solid waste management and drinking water shall be adhered to in the operation and siting of disposal sites for refuse and putrescible wastes. Additionally, to the extent feasible and prudent, disposal sites for refuse and putrescible wastes shall:

- C-7.1** Be located in upland sites a minimum of 1,500 feet from domestic water sources or fish-bearing waterbodies, and a minimum of 200 feet from any surface waters. The appropriate setback shall be determined following a site-specific surface and subsurface hydrological investigation;
- C-7.2** Be located to avoid destruction of important or essential habitats;
- C-7.3** Be designed and operated to avoid pollution of surrounding areas and to avoid creation of an attractive nuisance for wildlife, i.e. prevent garbage foraging by wildlife;
- C-7.4** Provide for the incineration of combustible materials generated by new development activities, unless the environmental effects of incineration are more detrimental than disposal in a landfill or removal from the CRSA; and
- C-7.5** Ensure that offshore developments, marine vessels, and floating fish processors shall dispose of refuse only in approved, onshore disposal sites. Floating fish processors shall dispose of fish processing wastes only at locations authorized by appropriate state and federal permitting agencies.

C-8 Sewage Disposal

Where feasible and prudent, sewage ponds and treated sewage outfalls shall be setback a minimum of 1,500 feet from currently used domestic water supplies or fish-bearing waters, and a minimum of 200 feet from any surface waters. The appropriate setback shall be determined following a site-specific surface and subsurface hydrological investigation.

C-9 Storage of Petroleum and Petroleum Products

Facilities for the storage of petroleum and petroleum products shall be in compliance with federal and state oil pollution regulations and regulations regarding drinking water supplies. Additionally, to the extent feasible and prudent, facilities for the storage, processing, or treatment of 5,000 gallons or more of petroleum or petroleum products shall be sited a minimum of 500 feet from domestic water supplies and any surface waters. Impermeable berms and basins capable of retaining 110 percent of the tank capacity (or capacity of the largest tank where multiple tanks are separately valved) plus maximum accumulated precipitation shall be required to minimize the potential for inadvertent pollution. For facilities of 5,000 gallons or more, a plan of operation for the facility, and for the recovery, storage, and transportation of spilled petroleum or petroleum products shall be prepared.

C-10 Oil Spill Contingency Plans (Administrative Policy)

The Bering Straits CRSA Board shall, if requested, work with project sponsors to provide that affected communities and landowners be involved in the development and review of oil spill contingency plans, when such plans are required of project sponsors by federal or state statutes or regulations, in accordance with the procedures identified in Chapter 6, Implementation.

C-11 Siltation and Sedimentation

Development uses, activities, and facilities shall not induce increased sedimentation, siltation, and resulting turbidity which could have a significant adverse impact to aquatic productivity and habitats, marine fish, shellfish, or anadromous fish populations in marine, estuarine, and freshwater environments.

C-12 Discharge of Drilling Muds, Cuttings, and Production Waters

- C-12.1 The discharge of drilling muds, cuttings, and production waters into marine waters of the district shall adhere to NPDES conditions and the Alaska Coastal Management program consistency requirements incorporated in or accompanying the NPDES permit. The Alaska Department of Environmental Conservation Certificate of Reasonable Assurance for NPDES permits shall require discharges to have no significant, acute, or cumulative adverse impacts on fish, wildlife, or aquatic plant resources.
- C-12.2 Discharges of drilling muds, cuttings, or production waters to fresh water lakes, streams, wetlands, or to estuarine waters shall not be permitted.
- C-12.3 Whenever feasible and prudent, disposal of produced waters in upland areas shall be accomplished using reinjection techniques.

C-13 Oil and Gas Operations

Oil and gas plans of operation, and development and production plans must contain "best available technology" oil spill detection, containment, and clean-up measures which will minimize adverse impacts to fish and wildlife, habitats, commercial fishing, and subsistence resources and activities.

C-14 Nuclear Testing

Uranium fuel processing facilities and nuclear testing shall be sited and conducted in a manner that does not adversely affect fish, birds, animals, vegetation, or people in the Bering Straits CRSA.

D. HISTORIC, PREHISTORIC, AND ARCHAEOLOGICAL SITES

D-1 Regional and Local Planning (Administrative Policy)

It is the policy of the Bering Straits CRSA Board that cultural resources be considered during development of regional and local planning activities, in accordance with the procedures identified in Chapter 6, Implementation.

D-2 Cultural Resource Areas

Based on the limited inventory of historic and archaeological sites in the region and the variety of environmental settings in which they have been found, all areas within the coastal zone boundary are considered to have the potential to contain significant cultural resources. Evaluation of potential impacts to significant cultural resources and appropriate mitigation shall be the responsibility of entities proposing development activities. Project sponsors proposing development activities with the potential to adversely affect cultural resources shall provide an assessment and evaluation of identified cultural resource sites. This shall include referring to BSCRSA Volume 2, Map 5.1 to see if the project is within a township where cultural sites have been documented. If the project is within such a township, the district and State Historic Preservation Office shall be contacted for more site-specific information. The district may identify local residents with site-specific knowledge. Where there is potential for undiscovered cultural sites in a project area, the appropriate federal and state agencies and the district, in consultation with affected communities, shall determine if a cultural resource survey is needed prior to surface disturbance activities.

Uses and activities which may adversely affect cultural resource areas shall comply with the following standards:

- D-2.1** To the extent feasible and prudent, archaeological, prehistoric, and historic resources shall be protected from adverse impacts caused by adjacent uses and activities.
- D-2.2** Prior to major projects listed in Chapter 6.7, the project applicant shall conduct a review, contact the State Historic Preservation Office, and ensure that areas or artifacts of significant historic, prehistoric, or archaeological importance will not be disturbed or destroyed during project development.
- D-2.3** If previously undiscovered artifacts or areas of historic, prehistoric, or archaeological importance are encountered during development activities, the Bering Straits CRSA Board and the State Historic Preservation Office shall be notified. The site shall be protected from further disturbance pending evaluation by the State Historic Preservation Office.

D-3 Traditional Activities

Uses and activities which require permits or approvals and which may impact traditional activities at cultural or historic sites shall avoid or mitigate significant impacts. Appropriate mitigation is determined by the State and district in consultation with the landowners, affected communities, and the regional non-profit corporation.

D-4 Data Requirements (Administrative Policy)

Prior to any major archaeological project within the district, adequate information provided by project sponsors to the Bering Straits CRSA Board and affected communities will be used to determine the purpose of the project and the anticipated impacts to cultural resources, fish and wildlife and their habitats, plant resources, and subsistence activities identified in the Bering Straits coastal management program, in accordance with the procedures identified in Chapter 6, Implementation.

D-5 Removal of Artifacts

All state and federal regulations governing removal of artifacts must be met. Additionally, on private lands, artifacts shall not be removed from the Bering Straits CRSA without permission of the affected landowner. On public lands, artifacts shall not be removed from the Bering Straits CRSA without permission from the affected communities and the regional non-profit corporation.

D-6 Cultural Resource Orientation

For major projects listed in Chapter 6.7, the project applicant shall inform construction and operation workforces of the importance of historic and cultural resources to local residents, and of the state and federal laws prohibiting disturbance of such resources.

E. GEOPHYSICAL HAZARDS

E-1 Design and Siting Criteria

Industrial and commercial development, public buildings, and public housing projects shall not be located in a geophysical hazard area if a feasible and prudent alternate site exists. Development in geophysical hazard areas shall incorporate appropriate siting, design, construction, and operation measures to minimize property damage, minimize potential impacts to the environment, and protect against loss of life.

E-2 Local Knowledge (Administrative Policy)

It is the policy of the CRSA Board that information concerning known geological hazards be supplemented with the knowledge and experience of local residents, particularly elders. The Bering Straits CRSA Board shall, if requested, in cooperation with local villages, assist development entities in obtaining this information, in accordance with the procedures identified in Chapter 6, Implementation.

E-3 Coastal Processes

Development and resource extraction activities shall be sited and conducted to minimize accelerated coastal erosion or adverse impacts to coastal processes which could contribute to increased geophysical hazards.

E-4 Coastal Storm Surge/Tsunami Flooding

To the extent feasible and prudent, industrial and commercial development, public buildings, and public housing projects shall not be located within areas subject to storm surge or other saltwater flooding. When siting within such areas is unavoidable, structures shall be located, designed, constructed, and operated to minimize property damage, minimize potential impacts to the environment, and protect against loss of life.

E-5 Hazards

To the extent feasible and prudent, new developments shall avoid areas subject to landslide and mass wasting hazards. Industrial and commercial developments, public buildings, and public housing projects shall incorporate appropriate siting, design, construction, and operation measures to minimize the hazards.

E-6 Riverine Flooding

To the extent feasible and prudent, industrial and commercial developments, public buildings, and public housing projects shall not be sited within the annual floodplain and highwater channels of rivers, streams, and lakes. Where siting of facilities within this area is unavoidable, structures must be designed and constructed to minimize property damage, minimize impacts to the environment, and protect against loss of life.

E-7 Permafrost

Development activities and uses shall incorporate measures for protection of the organic mat and underlying permafrost into project planning, design, and construction. Where disturbance of the organic mat is unavoidable, the area disrupted shall be stabilized to avoid degradation of the permafrost.

E-8 Ice Hazards

To the extent feasible and prudent, shoreline and offshore developments shall avoid areas subject to ice hazards such as ice over-ride, ridging, and gouging. Development within such areas shall be subject to siting, design, construction, and operation measures which minimize the potential hazards.

F. COASTAL DEVELOPMENT

F-1 Water-Dependent and Water-Related Activities

In planning for and approving development in shoreline and waterfront areas, the Bering Straits coastal management program and state agencies shall give priority, in the following sequence, to:

- a) water-dependent uses and activities;
- b) water-related uses and activities; and
- c) uses and activities which are neither water-dependent nor water-related, for which there is no feasible and prudent inland alternative to meet the public need for the use or activity.

F-2 Mitigation

All land and water use activities shall be conducted with appropriate planning and implementation to mitigate potentially adverse effects on the following resources of local, state, or national importance: fish and wildlife populations and their habitats; subsistence resource uses and activities; commercial fishing uses and activities; and cultural resources. Mitigation shall include and be considered in the following order of preference:

- a) attempt to avoid the loss of the affected resource or activity;
- b) when the loss cannot be avoided, minimize the loss and the need for restoration, maintenance, or compensation efforts;
- c) when the loss of resources and/or associated activities cannot be minimized, restore or rehabilitate the resource to its predisturbance condition, to the extent feasible and prudent; and
- d) when loss or damage to existing resources and associated activities is substantial and irreversible (including, for example, a seasonal loss in commercial fishing or subsistence harvest) and the above objectives cannot be achieved, compensation for resource and/or harvest loss shall be considered. In the case of loss of habitat production potential, enhancement of other habitats shall be considered as one alternative means of compensation.

The costs of mitigation, relative to the benefits to be gained, will also be considered in implementation of this policy.

Intent:

Policy F-2 is intended to provide sequential steps that will be followed to mitigate potential impacts. Policy F-2 (a) and (b) states that for all fish and wildlife populations and their habitats and commercial and subsistence harvest activities, it is appropriate to first attempt to avoid loss of habitat or interference with harvest activities, and secondly to minimize such loss or interference. The Coastal Policy Council encourages sound project site planning, design, and construction to achieve these requirements.

Policy F-2 (c) and (d) addresses restoration or compensation for fish and wildlife populations or habitat loss or interference with commercial and subsistence harvest activities. The importance of the habitat and commercial or subsistence harvest will be considered during evaluation of the need for restoration or compensation.

F-3 Dredge and Fill

Dredging or filling operations which may have a significant, adverse effect on important or essential fish and wildlife habitat shall be prohibited unless no feasible and prudent upland alternative site exists to meet the public need for the proposed project. If no feasible and prudent alternative is available, the project shall be designed, constructed, and maintained to minimize the area of disturbance, disruption of drainage patterns, and the need for continual maintenance of the project.

F-4 Dredge Spoil Disposal

Dredge spoils from construction-related activities shall be disposed of in approved onshore sites. Discharge may occur in an approved offshore area if the material is suitable fill for an approved project, or would cause less adverse impact to the environment, subsistence activities, and historic/cultural sites. Offshore disposal shall meet applicable state and federal regulations. Dredged spoil disposal shall avoid significant adverse impact to important and essential habitats and significant alteration of shoreline processes. Onshore disposals shall be contained and stabilized to prevent erosion and leaching into adjacent waters.

F-5 Enclave Development

To the extent feasible and prudent, housing, camp facilities, and other infrastructure in support of major development projects shall be located in enclaves separated from existing communities, unless the affected community approves of a different arrangement.

F-6 Infrastructure and Public Services (Administrative Policy)

The Barling Straits CRSA Board shall, if requested, work with sponsors of major development projects listed in Chapter 6.7 which require a significant increase in infrastructure, utilities, or public services to ensure that the affected communities are apprised and receive reasonable advance notification of the proposed project needs, schedule, and specific plans to minimize the impact of development activities on the affected community, in accordance with the procedures identified in Chapter 6, Implementation.

F-7 Development Timing

To the extent feasible and prudent, offshore resource exploration and development activities shall be scheduled and/or located to avoid impacts to commercial fishing and subsistence activities. Where significant adverse impacts cannot be avoided, mitigation shall be considered in accordance with policy F-2.

F-8 Minimize Adverse Shoreline Disturbance

To maintain the stability and function of the marine coastline, stream and river banks, and lake shorelines, commercial and industrial development facilities and structures shall not be located closer than 100 feet from higher-high water (HHW) of coastlines and ordinary high water of river, stream, and lake shorelines unless the use or activity is water-dependent or water-related. Commercial or industrial uses and activities which are neither water-dependent or water-related may occur only if there is no feasible and prudent alternative to meet the public need.

F-9 Completion of Use

Upon abandonment, completion of use, or expiration of authorization (whichever occurs first), facilities, structures, and debris shall be removed by the project sponsor and the site rehabilitated unless there is a demonstrated future use for the site, as determined by appropriate state agencies and the district in consultation with affected communities and the project sponsor, or unless such removal and rehabilitation would cause greater impacts than abandonment. Where feasible and prudent, gravel removed from abandoned roads and pads shall be stored in approved sites for reuse in future construction.

F-10 Multiple Use

To the extent feasible and prudent, ports, piers, cargo handling, storage, parking, and other coastal facilities shall be designed and utilized to minimize the need for duplicative facilities. Subsequent use of facilities for purposes other than their original intent shall also be a consideration in the siting and design of coastal facilities.

F-11 Compatibility

To the extent feasible and prudent, activities on and uses of coastal lands and waters shall be compatible with adjacent land and water uses, including subsistence.

F-12 Compliance Monitoring

For coastal developments and activities, the permitting or authorizing agency shall discuss and cooperatively set, as funding permits, monitoring priorities with the district to insure compliance with stipulations and special conditions on permits or authorizations.

G. MINING AND MINERAL PROCESSING

G-1 Access to Minerals

Where feasible and prudent, new residential, commercial, or industrial development shall not be sited in locations which would preclude or significantly hinder the effective and safe development and extraction of identified mineral deposits.

G-2 Planning Processes (Administrative Policy)

Entities proposing major mining or mineral processing activities are strongly advised to provide the Bering Straits CRSA Board, affected communities, and affected landowners an opportunity to participate in planning processes, in accordance with the procedures identified in Chapter 6, Implementation.

G-3 Sand and Gravel Priority Areas

To the extent feasible and prudent, sources of sand and gravel shall be authorized in a descending order of priority, as follows:

- a) existing, approved upland sand and gravel pits;
- b) reuse of sand and gravel from abandoned development areas;
- c) new upland sand and gravel pits;
- d) rivers, streams, and lakes that do not support fish;
- e) marine shoreline and offshore sand and gravel sources; and
- f) floodplain sand and gravel sources in fish-bearing streams.

G-4 Floodplain Sand and Gravel Extraction

If removal of sand and gravel from streams and rivers for construction, sale, or related purposes cannot be avoided, the following policies apply:

- G-4.1 To the extent feasible and prudent, sand and gravel shall be extracted from the following river configurations in the order of highest to lowest preference: braided, split channel, meandering, sinuous, and straight. When possible, exposed sand and gravel bars in broad, active floodplains shall be considered for extraction.
- G-4.2 To the extent feasible and prudent, changes to channel hydraulics shall be avoided.
- G-4.3 Sand and gravel pits shall be located to minimize the probability of channel diversion through the site.
- G-4.4 The effects of sand and gravel removal shall be minimized by maintaining buffers between active channels and the work area and by avoiding instream work, unnecessary clearing of riparian vegetation, and disturbance to natural banks.
- G-4.5 To the extent feasible and prudent, site configurations shall avoid the use of long straight lines and shall be shaped to blend with physical features and surroundings to provide for diverse riparian and aquatic habitats.
- G-4.6 If the work area may be inundated by high water during the period of operation, temporary dikes shall be constructed around the site to segregate the work area from active channels and avoid the entrapment of fish.
- G-4.7 Removal of sand and gravel from floodplains of fish bearing streams shall not adversely impact spawning or overwintering habitat.
- G-4.8 When gravel washing operations occur in the floodplain, settling ponds shall be used to remove suspended materials from the wash water; settling ponds shall be adequately diked or set-back from active channels to avoid breaching by a 10-year frequency flood. Wash water shall be recycled or other appropriate mining technologies will be utilized so that the effluent discharge complies with state and federal water quality regulations.

G-5 Overburden Disposal

Overburden shall not be disposed of in lakes, within the mean annual floodplain of streams or rivers, or below the limit of mean high water in intertidal areas and estuaries. Whenever feasible and prudent, overburden in upland areas shall be saved and replaced on the disturbed area to conform to the natural topography as part of the reclamation process.

G-6 Reclamation and Restoration

Reclamation of all upland and floodplain mined sites shall be required unless such reclamation would cause greater adverse impact to the environment. At a minimum, reclamation shall include the following elements, as applicable:

- G-6.1 Topsoil shall be segregated from overburden, and both shall be stored above the mean annual floodplain of rivers, streams, and lakes. Topsoil for these purposes is defined as the layer of mineral and organic material in which fibrous plant roots can survive.
- G-6.2 At the end of each mining operation season, all disturbed areas shall be graded to stable slopes or otherwise stabilized to minimize erosion. Within mean annual floodplains, regrading to ground contours which will not entrap fish nor significantly alter stream hydraulics shall occur at the cessation of each operating season. Sand and gravel materials used in the construction of settling ponds and other essential facilities may be retained in place until completion of use.
- G-6.3 At the completion of mining activities or sand and gravel extraction, all disturbed areas shall be stabilized and revegetated, as appropriate. Restoration shall include the following:
 - a) All disturbed areas shall be graded to stable slopes that blend with the natural topography;
 - b) Erosion control measures shall be implemented as appropriate to stabilize the site; and
 - c) Areas designated for revegetation shall be covered with topsoil to encourage establishment of native plant species.

An exception to these requirements is provided for the portion of a sand or gravel extraction site required to provide materials for continuing maintenance and operation activities. Maintenance sand and gravel sites will comply with the requirements of part G-6.2 of this policy.

G-7 Coastal Gravel Extraction

Sand and gravel may be extracted from coastal waters, intertidal areas, barrier islands, and spits only when there is no feasible and prudent alternative to coastal extraction which will meet the public need for the sand or gravel. Such extraction activities shall minimize adverse impacts on wave energy, sediment transport, herring and anadromous fish spawning and rearing habitats, and waterfowl habitat; minimize increases in shoreline erosion; and minimize increases in turbidity and sedimentation.

G-8 Offshore Mining and Extraction of Sand and Gravel

- G-8.1 Extraction of sand and gravel or recoverable minerals from the sea bottom in offshore areas shall avoid significant adverse impacts to important and essential habitats, commercial fishing activities, subsistence harvest activities, and navigation.

- G-8.1** Extraction of offshore sand and gravel or recoverable minerals within a one mile radius from the ordinary high water mark of anadromous fish streams, measured from their confluence with mean lower-low water may be allowed only after the project applicant provides information demonstrating to appropriate state agencies and the district that mining and related activities will avoid significant adverse impacts to anadromous fish and their habitat.
- G-8.3** Dredge spoils and processed materials associated with offshore mining for recoverable minerals shall be discharged on the sea bottom in the area from which they were extracted unless discharge in an approved offshore or onshore site would cause less impact to the environment, subsistence activities, and historic/cultural sites.
- G-8.4** Offshore mining and mineral processing activities shall avoid discharge of toxic substances (as defined in Department of Environmental Conservation regulations) in processing effluent in concentrations which exceed state or federal water quality criteria at the boundary of an approved mixing zone, or, if no mixing zone has been approved, at the point of discharge. In areas where toxic substances occur naturally in bottom sediments, offshore mining activities shall not resuspend such toxic substances in the water column in excess of that allowed by water quality regulations or contribute to additional bioaccumulation of toxic substances in marine organisms or fish.

G-9 Placer Mining

- G-9.1** Extraction of placer deposits shall avoid significant adverse impacts to important and essential habitats, commercial fishing activities, and subsistence harvest activities. If adverse impacts cannot be avoided, those impacts must be mitigated in accordance with policy F-2.
- G-9.2** Placer operations which discharge processing wastewater to rivers or streams shall incorporate functional sediment control facilities or techniques into the design and operation of the placer mine, as appropriate to meet state and federal water quality standards for effluent discharge.
- G-9.3** Maximum use of recycled water or other appropriate mining technologies shall occur to minimize water withdrawal from the stream and subsequent discharge of effluent to adjacent waters.
- G-9.4** All placer operations shall be designed, constructed, and operated in compliance with applicable state and federal regulations and water quality standards.
- G-9.5** Placer mining operation sites shall be rehabilitated upon completion of use in accordance with Policy G-6. Tailings and processed materials shall be stabilized or contained as appropriate to avoid accelerated erosion and prevent leaching of toxic substances that may be present with the target minerals.

N. ENERGY FACILITIES

N-1 Planning Requirements (Administrative Policy)

The state and federal government are strongly encouraged to provide the Bering Straits CRSA Board, affected landowners, and affected communities the opportunity to participate in planning processes for major industrial and commercial facilities, in accordance with the procedures identified in Chapter 6, Implementation.

H-2 Siting Considerations

To the extent feasible and prudent, the siting and approval of major industrial and commercial facilities shall be based on the following standards:

- H-2.1 Facilities shall be sited to minimize adverse environmental and social effects on the resources and residents of the region, while satisfying industrial and commercial requirements;
- H-2.2 Facilities shall be sited to be compatible with existing and subsequent adjacent uses and projected community needs;
- H-2.3 Consolidate facilities and consider the concurrent use of facilities for public or economic reasons;
- H-2.4 Select sites with sufficient acreage to allow for reasonable expansion of facilities;
- H-2.5 Site facilities where existing infrastructure, including docks, roads, and airstrips, is capable of satisfying industrial and commercial requirements;
- H-2.6 Select sites where development will minimize the need for site clearing, dredging, or construction in productive coastal habitats;
- H-2.7 Site facilities to minimize the probability that petroleum spills or other forms of contamination along shipping routes could adversely affect commercial and subsistence fishing areas or biologically productive or vulnerable habitats, including marine mammal haul-outs, seabird feeding areas, and waterfowl nesting areas;
- H-2.8 Site facilities so that the design and construction of those facilities and the support infrastructure will allow for the free passage and movement of fish, wildlife, and reindeer with due consideration for historic migratory patterns;
- H-2.9 Site facilities so that areas of particular subsistence, scenic, recreational, environmental, or cultural value will be protected;
- H-2.10 Site facilities in areas of least biological productivity, diversity, and vulnerability, and where effluents and spills can be controlled and contained;
- H-2.11 Site facilities where winds and air currents maximize dispersal of airborne emissions which cannot be captured before escape into the atmosphere;
- H-2.12 Select sites in areas which are designated for industrial and commercial purposes and where traffic is minimized through population centers;
- H-2.13 Site and construct facilities such that public access is not unreasonably restricted and where alternate routes for public access can be provided;
- H-2.14 Select sites where vessel movements will not result in overcrowded harbors or interfere with commercial or subsistence fishing operations or equipment; and
- H-2.15 Cooperate with private landowners, local governments, developers, and state and federal agencies in the development of major industrial and commercial facilities.

H-3 Use of Existing Energy Facilities

To the extent feasible and prudent, existing energy facilities shall be used to meet new requirements for exploration and production support bases, transmission/shipment (including pipelines and transportation systems), and distribution of energy resources.

H-4 Geophysical Surveys

Geophysical surveys in fresh and marine waters shall be conducted using energy sources such as air guns, gas exploders, and other sources that have been demonstrated to be harmless to fish and wildlife.

Intent:

Policy H-4 balances several uses of state concern and national interest, including exploration and production of oil and gas resources and the protection and utilization of the state's fisheries. After considering the information available on the value of the state's fisheries, the potential adverse impacts associated with the use of explosives in open water, and the potential information to be derived from seismic activities in the transition zone, the state has serious concerns about the use of explosives for seismic exploration in marine waters. The state recognizes that limited use of explosives may be necessary to obtain quality seismic data in certain areas of the transition zone, such as when there is a need to "tie" geophysical information between potential offshore lease tracts and onshore well sites.

Implementation of Policy H-4 will be based on the best available scientific information relative to the significant adverse impacts of explosives and other seismic technology on fish and wildlife. The State of Alaska is reviewing its current policy pertaining to the use of explosives in marine waters, evaluating alternative means of collecting seismic information in the transition zone, and evaluating available measures to mitigate adverse impacts on marine life and fishery activities. The Alaska oil and gas industry has sponsored a program of research to provide additional information with regard to the effects of linear explosives on juvenile salmon in the marine environment. Should a review of this research and the continuing evaluation of the state's seismic policy by the State of Alaska indicate a change to this policy is warranted, the state will pursue such a change.

1. TRANSPORTATION AND UTILITY SYSTEMS

1.1 Planning Processes (Administrative Policy)

The state and federal government are strongly encouraged to provide the Bering Straits CRSA Board, affected landowners, and affected communities with the opportunity to participate in planning processes for transportation and utility corridors, in accordance with the procedures identified in Chapter 6, Implementation.

1.2 Facility Design, Construction, and Maintenance

Highway, airport, port, and utility system design, construction, and maintenance shall minimize alteration of watercourses, wetlands, and intertidal marshes and consider visual compatibility of facilities with the environment.

1.3 Siting and Scheduling

Transportation and utility corridors shall be sited, designed, and operated, with the following standards:

- 1.3.1** Adverse impacts to habitats, biological resources, subsistence activities, and the community lifestyle shall be minimized;

- I-3.2 To the extent feasible and prudent, transportation and utility corridors and facilities shall be consolidated;
- I-3.3 Impacts to the free passage and movements of fish, wildlife, and reindeer shall be minimized, with due consideration for historic migratory patterns;
- I-3.4 Phasing of construction shall be scheduled in project plans to minimize disturbance during critical migration periods for fish, wildlife, and reindeer; and
- I-3.5 Road and pipeline crossings of anadromous fish streams shall be minimized and, to the extent feasible and prudent, consolidated at single locations to reduce multiple impacts to an individual drainage.

I-4 Harbors and Shipping Routes

Harbors and shipping routes shall be sited to avoid reefs, shoals, drift ice and other ice hazards, and other navigational obstructions unless appropriate technology or navigational techniques can mitigate these hazards.

I-5 Airstrips

Where feasible and prudent, new airstrips shall be located, designed, and constructed to avoid physical, visual, and acoustical disturbances to residents, subsistence activities, and important and essential fish and wildlife habitats and populations.

I-6 Electric Transmission Facilities

Wherever feasible and prudent, transmission lines and towers shall be constructed in existing transportation and utility corridors and shall not be sited in important or essential waterfowl habitats or migration areas.

J. RECREATION

J-1 Planning Processes (Administrative Policy)

The state and federal government are strongly encouraged to provide the Bering Straits CRSA Board, affected landowners, and affected communities an opportunity to participate in recreation planning, in accordance with the procedures identified in Chapter 8, Implementation.

K. DISPOSALS OF INTEREST

K-1 Planning Processes (Administrative Policy)

The state and federal government are strongly encouraged to provide the Bering Straits CRSA Board, affected communities, and affected landowners the opportunity to participate in the planning process for land disposals and disposal of interests within the region, including homestead settlements, subdivisions, agricultural disposals, and leases, in accordance with procedures identified in Chapter 6, Implementation. Coordination should include the village corporation shareholders for the homestead programs and other private land disposal programs.

K-2 Coordination with Board (Administrative Policy)

The Bering Straits CRSA Board shall assist the state and federal government in the evaluation of disposals of interest and land disposal programs by providing an assessment of the market for land, the type of disposal that meets the needs of the residents, the location of appropriate disposal areas, and optimum timing and design of disposals, in accordance with procedures identified in Chapter 6, Implementation.

K-3 State Land Disposals

The Bering Straits CRSA will participate in the planning process for programmatic state land disposals in accordance with the authorities outlined in AS 38 (for example, AS 38.04.065, AS 38.05.300, AS 38.05.945), 6 AAC 50, and other Department of Natural Resources procedures (Land Administration Data System, or "LADS" process).

L. TIMBER

L-1 Planning Processes (Administrative Policy)

Entities proposing timber harvest and processing activities are strongly advised to provide the Bering Straits CRSA Board, affected communities, and affected landowners the opportunity to participate in the planning process, in accordance with the procedures identified in Chapter 6, Implementation.

L-2 Fire Protection (Administrative Policy)

The state and federal government are strongly encouraged to provide the Bering Straits CRSA Board, affected communities, and affected landowners the opportunity to participate in the planning process for amendments to fire protection agreements affecting the district, in accordance with the procedures identified in Chapter 6, Implementation.

L-3 Timber Management Practices

Best management practices shall be used in all commercial forestry and timber harvest activities in accordance with the Forest Resource and Practice Regulation (11 AAC 95) of the Forest Practices Act (AS 41.17).

M. COASTAL ACCESS AND EASEMENTS

M-1 Planning Processes (Administrative Policy)

The state and federal government are strongly encouraged to provide the Bering Straits CRSA Board, affected landowners, and affected communities the opportunity to participate in the planning process for access points and easement routes on state and federal lands, in accordance with the procedures identified in Chapter 6, Implementation.

M-2 Easements

Recreational, industrial, commercial, and other users shall utilize permitted or identified easements through or adjacent to private lands.

Chapter 6: Implementation

6.1 INTRODUCTION

A plan without adequate implementation is like a harpoon without a hunter — a proper tool lacking guidance, direction, and strength. The Bering Straits CRSA Board has developed an implementation program which will ensure that the region's major landowners, municipal and tribal governments, and state and federal permitting agencies understand the process and authorities by which proposed activities are:

- reviewed for their consistency with the Bering Straits Coastal Management Plan, and
- monitored and enforced for compliance with permit conditions and stipulations associated with coastal management.

Implementation of the Bering Straits Program relies on continuing discussion among the CRSA Board, Native Corporations, and other affected private landowners, municipal and tribal governments, state and federal agencies, and private industry. Only through open communication can coastal management balance local, state and national interests.

Consistency and When it is Determined

It is important to understand how a coastal management plan is used to guide activities that take place in coastal lands and waters. Making a consistency determination is the legal process for providing this guidance. "Consistency" means that certain actions initiated or permitted by state and federal agencies must comply (or be consistent) with the policies of a coastal management plan that has been approved by the state and federal government.

The process of obtaining state or federal permits includes review of a proposed project or activity for its consistency with a coastal management program. When an agency reviews an application for a permit, it reviews the proposed activity against its own and other regulatory requirements. If the proposed activity meets all regulatory requirements, including coastal management, a permit will be issued. An activity that does not meet regulatory requirements may not be approved, or may be permitted as long as it follows certain conditions or stipulations. Development cannot proceed until all required permits are issued. The Bering Straits CRSA is one of several review agencies participating in the consistency determination process. The CRSA makes a consistency recommendation to the agency coordinating permit review. That agency must legally address the CRSA's and other consistency recommendations in making their consistency determination.

This process and the role of the CRSA is discussed in more detail in sections 6.3 and 6.4.

What Determines Consistency

The Bering Straits CRSA Coastal Management Plan receives its authority from the Federal Coastal Zone Management Act of 1972, which allows states to develop their own coastal management programs, and the Alaska Coastal Management Act of 1977, which creates coastal resource service areas and allows them to prepare local coastal management plans. CRSA's are responsible for refining the more general statewide policies of the Alaska Coastal Management Act in a manner that best reflects local issues, goals, and objectives. When a CRSA plan is approved and adopted by the State, the Alaska Coastal Management Program is amended to include the CRSA plan. Through CRSA's, local residents can develop, within certain guidelines, the policies that state agencies will use in making consistency determinations on permit applications.

The policies presented in Chapter 5 of this plan form the basis for consistency determinations by federal and state agencies, and consistency recommendations by the Coastal Board and its staff. These policies are considered the enforceable rules for the purpose of program implementation. The plan policies apply to all lands and waters, and subject uses and activities within the Bering Straits coastal area. Through the existing Permit Reform project application process, the project developer must assure the CRSA Board that the proposed project is in conformance with applicable plan policies.

The plan's policies will be applied to projects, activities, or uses which will be located in, or may have significant direct effects on the Bering Straits coastal area as outlined in 6 AAC 50. Projects that require an individual consistency review are listed in Section 6.2 and generally require state or federal permits or other approvals such as leases. When a land or water activity is developed or authorized as discrete phases, and each phase requires agency decision(s) on permit approval, each phase is considered a "project" for the purposes of permit review.

In addition to enforceable policies, Chapter 5 contains Administrative Policies that provide additional guidance on uses and activities within the coastal zone. These policies often reflect recommended procedures outlined in this Chapter, such as Pre-development Meetings, Participation in Regional Planning, and Notification of Affected Communities. While compliance is not required, the objective of these policies and procedures is to minimize conflict and delay through early cooperation and timely notification.

Framework for Implementation

Because a CRSA has no planning powers like municipal governments, implementation of the Bering Straits Coastal Management Program and application of coastal management policies must rely on the utilization of existing federal and state regulations and permitting and planning activities. Cooperation and participation from the major private landowners and municipal and tribal governments in the region will insure that coastal activities are conducted in a manner consistent with this plan's policies.

Two mechanisms for local consistency recommendations are discussed in this chapter. The state consistency process conducted under 6 AAC 50 plays a major role. The Bering Straits CRSA also recommends that certain types of major development activities take part in comprehensive planning and conference procedures, which include the participation of federal, state, native corporation, and traditional government land managers. These procedures will be used by the Bering Straits CRSA Board in their consistency recommendations to apply policies and set the specific guidelines, standards, time lines, and monitoring requirements for certain types of activities. The district program may be amended to include portions of appropriate planning efforts that serve to enhance the Bering Straits CRSA program.

A local coordination process will be established to make consistency recommendations. The existing CRSA Board will oversee the continued refinement, development and implementation of the coastal plan for the region. The Bering Straits CRSA Board is the legally designated local agent for plan implementation in the area. Involvement of the Board in interpreting the plan is crucial to successful implementation. The Program Director and village contacts will aid the Board and participate in a review of all projects.

The remainder of the Implementation Chapter contains the following sections:

- 6.2 Permits and Activities Subject to Consistency Determination
- 6.3 State and Federal Permit Review and Consistency Procedures
- 6.4 Bering Straits CRSA Board Involvement in Consistency Determinations
- 6.5 Local Involvement in CRSA Board Recommendations
- 6.6 Key CRSA Board Participants and Responsibility
- 6.7 Planning for Major Projects
- 6.8 Amendments and Revisions
- 6.9 Monitoring and Enforcement
- 6.10 Permit Pre-Application Packet Requirements

6.2 PERMITS AND ACTIVITIES SUBJECT TO CONSISTENCY DETERMINATION

Federal and State Permits

Under the provisions of 6 AAC 50, the State of Alaska is required to make a determination of consistency with the Alaska Coastal Management Program (as amended by approved local district plans) for certain permits and other activities requiring approvals. The state resource agencies, the Departments of Natural Resources, Environmental Conservation, and Fish and Game, and the Office of Management and Budget have developed a list of permits which will be subject to a coastal consistency determination. This list is divided into three groupings:

Categorical Approval ("A" List) — activities that have been determined to have no significant impact on coastal lands and waters;

General Concurrence ("B" List) — activities that can be made consistent with the ACMP by imposing standard permit stipulations; and

Individual Project Reviews ("C" List) — activities that must be individually reviewed in order to determine consistency with the ACMP.

Table 6-1 contains the permits and activities which are required to undergo individual project review in the Bering Straits coastal area. The CRSA Program Director (see page 1-3) shall be notified of applications for these permits within the Bering Straits coastal district boundary and Permit Notification Area shown on Map 3-1.

Permits

Projects which require one or more state permits from the the "C" list will be the ones subject to state and CRSA consistency review (see Table 6-1). However, a CRSA may request notification from the Division of Governmental Coordination (DGC) or the lead agency of any permit which may affect the district. The Bering Straits CRSA Board will regularly review "A" and "B" List projects, and may request that certain projects from these lists be reclassified (eg. from "A" to "B", or "B" to "C"). For informational purposes, the CRSA Board requests notification of all "B" list permits issued within the Bering Straits Region.

Other Approvals

Under 6 AAC 50.190(11), "disposal of interest in state land" means the sale, lease, or other disposition of state-owned or state-managed land or resources by the Department of Natural Resources. Under 6 AAC 50 disposals of interest in state land are subject to the consistency review process, including surface land disposals, oil and gas leases, timber sales, material sales (e.g. sand and gravel), offshore prospecting permits (a property right), offshore mining leases, and other disposals involving state-owned land. The Alaska Department of Natural Resources (DNR), responsible for disposals of state interest, must reach a preliminary and final Best Interest Finding (BIF) prior to disposing of state interest. The coastal consistency review is often conducted at the same time. Under AS 38.05.945, DNR is required to notify affected municipalities and provide notice in local papers that the preliminary and final BIFs are available for review. It is recommended that notice be provided in a local paper such as the Nome Nugget or Northland News.

Consistency reviews for a disposal of interest will begin at a date which DGC, DNR, and the Bering Straits CRSA agree will most effectively allow for both the consistency review and DNR's own statutory responsibilities. In order to make their consistency recommendation, the Bering Straits CRSA requests receiving notification and adequate information for a consistency recommendation concurrent with the notification process for a preliminary BIF. The CRSA will follow the 40 or 60 day permit review timeframe in making their consistency recommendation to DNR. By participating in the procedures recommended in Section 6.6 of this chapter, the CRSA will be more familiar with the proposed disposal prior to consistency review.

TABLE 6-1: PERMITS AND APPROVALS REQUIRING INDIVIDUAL PROJECT REVIEW

Review Schedule*	Permit/Approval	Alaska Statute/Administrative Code Reference	
DEPARTMENT OF ENVIRONMENTAL CONSERVATION			
40-day	Air Quality Control Permit to operate (non-PSD)	AS 46.03.020	18 AAC 15
		AS 46.03.140	18 AAC 15
		AS 46.03.150	18 AAC 50
		& 160	18 AAC 50.300(c)
		AS 46.03.170 & 710	
60-day	Air Quality Control Permit to operate where Prevention of Significant Deterioration (PSD) is required (will likely require an extended review due to complex issues)	AS 46.03.020	18 AAC 15
		AS 46.03.140	18 AAC 50
		AS 46.03.150	18 AAC 50.300(c)
		& 160	
		AS 46.03.170 & 710	
60-day	Solid Waste Management Permit	AS 46.03.020	18 AAC 15
		AS 46.03.100	18 AAC 60
		AS 46.03.110	18 AAC 75
		AS 46.03.120	
		AS 46.03.710	
60-day	Reclassification of Waters of the State	AS 46.03.020	18 AAC 15 18 AAC 70.055
60-day	Waste Disposal Permit (Wastewater Discharge)	AS 46.03.020	18 AAC 15
		AS 46.03.100	18 AAC 70
		& 110	
		AS 46.03.120 & 710	18 AAC 72.010
60-day	401 Certifications— Certificate of Reasonable Assurance Sec. 401	AS 46.03.020	18 AAC 15 18 AAC 70 18 AAC 72
60-day	Oil Discharge Contingency Plans for Offshore Facilities and Onshore Fuel Storage Facilities with a capacity of 10,000 barrels or greater	AS 46.04.030	18 AAC 75.305-395
		AS 46.04.050	
60-day	Oil discharge contingency plans for vessels (tankers and barges)	AS 46.04.030	18 AAC 75.305-395

TABLE 6-1: (continued)

Review Schedule	Permit/Approval	Alaska Statute/Administrative Code Reference	
DEPARTMENT OF NATURAL RESOURCES:			
1. <u>DISPOSALS</u>			
<u>Division of Agriculture</u>			
N/A	Lease of cleared or drained agricultural land	AS 38.07.010-050	
<u>Division of Forestry</u>			
N/A	State timber sales and personal use contracts of more than 10 acres in the spruce-hemlock coastal forests (DGC south-eastern region and Prince William Sound) and more than 40 acres in interior forests south of the Alaska Range (DGC southcentral region) and any timber sales which include timber lands within 90 meters from anadromous and high value resident fish waters. State timber sales and personal use contracts of more than 160 acres north of the Alaska Range (DGC northern region), and any timber sales which include timber lands within 30 meters of anadromous and high value resident fish waters.	AS 38.05.110-120	11 AAC 71.005-910
N/A	Log salvage sales	AS 38.05.110-120	11 AAC 71.400-430
<u>Division of Land and Water Management</u>			
N/A	Sales of Land by Auction or Lottery	AS 38.05.045-055	11 AAC 67.045
N/A	Disposal of Agricultural Interest	AS 38.06.069	11 AAC 67.160-192
N/A	Homestead Disposals	AS 38.09	11 AAC 67.005-155
N/A	Opening of an Area for Issuance of Remote Cabin Permits	AS 38.05.079	11 AAC 67
N/A	Disposal of Remote Parcels	AS 38.05.077	11 AAC 67.110-135
N/A	Lease of Land	AS 38.05.320	11 AAC 67.045
N/A	Grazing Lease	AS 38.05.070	11 AAC 60.010-180
N/A	Lease of Tidelands	AS 38.05.320	11 AAC 62.010-840

TABLE 6-1: (continued)

Review Schedule	Permit/Approval	Alaska Statute/Administrative Code Reference	
N/A	Right-of-way or easement permits for roads, trails, ditches, pipelines, drill sites, log storage, telephone or transmission lines, outfall lines, or access corridors	AS 38.05.330	11 AAC 58.200
N/A	Oil and natural gas pipeline right-of-way leasing	AS 38.05.020(c) AS 38.35.010-280	11 AAC 80.005-055
N/A	Material Sales, except sales from approved upland sources and personal use contracts	AS 38.05.110-120	11 AAC 71
N/A	Water use permits, except for withdrawals from sources classified as categorical or general concurrence approvals	AS 46.15	11 AAC 93
N/A	Aquatic Farm Site Permits and Leases	AS 38.05.856 AS 38.05.083	11 AAC 63
<u>Division of Oil and Gas</u>			
N/A	Oil and gas lease sales	AS 38.05.136 AS 38.05.145 AS 38.05.180	11 AAC 83
N/A	Geothermal prospecting permit	AS 38.05.145 AS 38.05.181(g)	11 AAC 84.700(b)
N/A	Geothermal lease sales	AS 38.05.145 AS 38.05.181(h)	11 AAC 84.700
N/A	Oil shale lease	AS 38.05.145	11 AAC 84.300
N/A	Lease Operation Approvals except where provided for on the A or B list	AS 38.05.140	
<u>Division of Mining</u>			
N/A	Coal lease sales	AS 38.05.150	11 AAC 84.100-170
N/A	Coal prospecting permit	AS 38.05.145 AS 38.05.150(c)	11 AAC 84.115-135
N/A	Phosphate lease	AS 38.05.145 AS 38.05.155	11 AAC 84.200
N/A	Sodium compound prospecting permit and lease	AS 38.05.145 AS 38.05.170	11 AAC 84.400

TABLE 6-f: (continued)

Review Schedule	Permit/Approval	Alaska Statute/Administrative Code Reference	
N/A	Sulfur prospecting permit and lease	AS 38.05.145 AS 38.05.170	11 AAC 84.500
N/A	Potassium compound prospecting permit and lease	AS 38.05.145 AS 38.05.175	11 AAC 84.800
N/A	Offshore mining prospecting permit	AS 38.05.250(a)	11 AAC 86.500-535
N/A	Upland mining lease	AS 38.05.185 AS 38.05.250	11 AAC 86.300-325
N/A	Offshore mining lease and sales	AS 38.05.145 AS 38.05.250(b)	11 AAC 86.545-570

II. PERMITS AND OTHER APPROVALS

Division of Agriculture

60-day	Approval of application for clearing or draining of agricultural land in vicinity of state land	AS 38.07.030	
--------	---	--------------	--

Division of Land and Water Management

60-day	Approval of plan of operations or plan of development on leased lands (deadline does not apply when the plan is included in the lease at the time of the sale)	AS 38.05.020 AS 38.05.320	11 AAC 62.700
40-day	General land use permits, except for those classified as categorical or general concurrence approvals	AS 38.05.330	
40-day	Tideland Use Permits	AS 38.05.320	11 AAC 62.720-830
40-day	Temporary water use permits for water withdrawals except for withdrawals from sources classified as categorical or general concurrence approvals	AS 46.15.150	11 AAC 93
40-day	Site Suitability Permit for Aquatic Farming	AS 38.05.850	11 AAC 63

Division of Oil and Gas

60-day	Applications to drill geothermal wells	AS 41.06.050	
--------	--	--------------	--

TABLE 6-1: (continued)

Review Schedule	Permit/Approval	Alaska Statute/Administrative Code Reference	
60-day	Plan of operations on leased lands, except for those activities included in the General Concurrence category	AS 38.05.135 AS 38.05.145 AS 38.05.160	11 AAC 83.158
40-day	Geophysical Exploration Permit	AS 38.05.020 AS 38.05.035 AS 38.05.160	11 AAC 96.010-140
<u>Division of Mining</u>			
40-day	Miscellaneous land use permit for mining activity or mineral exploration (except where provided for on the A or B list).	AS 38.05.020 AS 38.05.035 AS 38.05.160	11 AAC 96.010-140
60-day	Plans of operations on leased lands or land subject to an offshore prospecting permit	AS 38.05.020 AS 38.05.035	11 AAC 96.010-140
As per SMCRA	Approvals subject to the Alaska Surface Coal Mining Control and Reclamation Act (SMCRA), other than Notices of Intent to Explore	AS 27.21.030	11 AAC 90.002
<u>Division of Parks</u>			
40-day	Authorization to Construct Structure in Parks	AS 41.20.040	11 AAC 12.140
40-day	Authorizations to use explosives in State parks	AS 41.20.040	11 AAC 12.140
60-day	Permit for access across state park	AS 41.20.040	11 AAC 18.020
60-day	Special use permit	AS 41.20.040	11 AAC 18.010
60-day	Permit for the removal of historic or archeological resources	AS 41.35.040 AS 41.35.060	11 AAC 18.030-.080
DEPARTMENT OF FISH AND GAME			
40-day	Fish Habitat Permit	AS 16.05.870 & 840	
60-day	Permit to Operate a Clam Dredge		5 AAC 38.050
60-day	Scallop Dredge Permit		5 AAC 38.068
60-day	Shellfish Farm Permit		5 AAC 41

TABLE 6-1: (continued)

Review Schedule	Permit/Approval	Alaska Statute/Administrative Code Reference
40-day	Refuges**	AS 16.20.060
40-day	Critical Habitat Areas**	AS 16.20.280
40-day	Game Sanctuaries**	AS 16.20.120-130
40-day	Hatchery Permits	AS 16.10.400-430
40-day	Scientific and educational collecting permits for aquatic farming operations	AS 16.05.930

FEDERAL AGENCIES

At a minimum the following federal actions will be reviewed for consistency.

U.S. Army Corps of Engineers

Rivers and Harbors Act

Clean Water Act

Environmental Protection Agency

Permits for ocean dumping (40 CFR 200)

NPDES permits

Department of the Interior

Right-of-way for pipelines on the OCS (43 CFR 2883)

Disposal of produced water (30 CFR 221.14)

National Wildlife Refuge Lands and National Park Service Use Permit (50 CFR 26)

NPS, USFWS, BLM Land Use Plans

Outer Continental Shelf Oil and Gas Lease Sales

Nuclear Regulatory Commission

Permit and licenses for the siting, construction and operation of nuclear facilities.

* The review schedule incorporates an automatic 10-day extension approved by the Coastal Policy Council for the Bering Straits CRSA program.

** Complex or large projects may be reviewed under a 60-day review schedule at ADF&G's discretion.

Source: Division of Governmental Coordination, September 1990

Native Corporation and Native Allotment Lands

The status of Native lands determines whether activities on those lands are subject to a coastal consistency determination. Activities on lands conveyed through the Alaska Native Claims Settlement Act of 1971, including selection by village and regional corporations and former reserve lands, are subject to coastal management. Native Allotments and individual restricted lots within Trustee Townsites are considered Bureau of Indian Affairs trust lands and are excluded, like other federal lands, unless activities are likely to have significant effects on uses, activities, or resources in the coastal area.

Permit Notification Areas

Map 3-1 identifies the location of "Permit Notification Areas" within the Bering Straits CRSA. Although these areas are not within the coastal area boundary, there is potential for projects (as defined in 5 AAC 50.190 (14)) in these locations to adversely affect resources in the coastal area. Authorizing and permitting agencies must notify the Bering Straits CRSA when applications are received for locations within the Permit Notification Areas. The state resource agencies and the district will evaluate each project on a case-by-case basis to determine whether the project is likely to have direct and significant impacts on the resources and habitats of the Bering Straits CRSA. If it is determined that a proposed project is likely to have such impacts, the proposed project in the Permit Notification Area will be subject to a consistency review according to the procedures of 6 AAC 50.

6.3 STATE AND FEDERAL PERMIT REVIEW AND CONSISTENCY PROCEDURES

Role of the Lead Agency

The lead agency is responsible for making all conclusive consistency determinations for state and federal permits. The Office of Management and Budget (OMB), Division of Governmental Coordination, is the lead agency for review of federal permits and for projects requiring two or more state agency permits. Where only one state permit is required, the permitting agency is also the lead agency for consistency determination. Depending on the permit involved, the Departments of Natural Resources, Environmental Conservation, or Fish and Game could be lead agencies.

Procedure and Time Line

For projects and activities subject to a consistency determination, the applicant must submit a completed project questionnaire to a state resource agency or to OMB. Based on the information provided in response to the questionnaire, the agency will identify all state resource agencies that the applicant must contact prior to submitting a permit application and will determine what agency will serve as the lead agency. The questionnaire will also be used in identifying state and local entities to be notified of the permit application and to be solicited for comment.

Upon receipt of a permit application, the lead agency must examine the application for completeness. If complete, the application is assigned a project number and dated as day one of the consistency review. In reaching a consistency determination, the lead agency will (1) notify authorized review agencies, such as the Bering Straits CRSA, of an action requiring a consistency determination, (2) send them the completed coastal questionnaire and other pertinent information, and (3) solicit a consistency recommendation. The lead agency must review and consider consistency recommendations received in making their consistency determination. If the coordinating agency rejects a recommendation or stipulation requested by the district, the coordinating agency must make a written finding stating the reasons for rejecting the stipulation. Where consistency conflicts arise between the CRSA Board and the lead agency, the lead agency will attempt to reach agreement (such as developing stipulations that address concerns).

Proposals for projects received for review from the state will operate on one of two different time lines. The proposals will be reviewed on a 30 or 50-day schedule. Since the Bering Straits Coastal District is within the unorganized borough, a 10-day extension may be granted which makes the time periods a minimum of 40 and 60 days long. Due to delays frequently experienced in receiving mail, the Bering Straits CRSA requested and received during CPO approval an automatic 10 day extension for all projects subject to consistency review under 6 AAC 50. Tables 6-2 and 6-3 present the major steps within the 40 and 60 day time lines.

TABLE 6-2: MAJOR PROCEDURES UNDER THE 40-DAY SCHEDULE

STEP	40 Day Schedule (by day)
Early contact with district about projects	--
Applicant submits completed packet; coordinating agency distributes packet and schedule	1-2
Review period (upon request)	3-27*
Last day for information request via coordinating agency	25
Last day for request for public hearing	27**
Deadline for comments to coordinating agency (verbal comments must be followed up in writing within 5 days)	28
Coordinating agency develops preliminary position; notifies applicant and districts with approved programs	34
Last day for written statement requesting elevation to director level	39
If a consensus is reached, consistency determination sent to reviewers; permit decision issued within 5 days	40***
If project is elevated, issue paper sent to reviewers	40****

* 10 day extension for comment and decision deadlines is automatic for the Bering Straits CRSA.

** Coordinating agency must decide within 7 days whether to hold hearing. If so, agency must provide 15-30 days of notice, and provide summary of hearing 5 days afterwards. Parties also have the same 7 days after receipt of summary to provide additional comments.

*** Agency permit decision to be issued five days after consistency determination received unless statutorily impossible.

**** Elevation can take up to 15 days at each level. If no consensus reached during elevation to directors, then elevated to Commissioner for policy direction.

TABLE 6-3: MAJOR PROCEDURES UNDER THE 60-DAY SCHEDULE

STEP	60 Day Schedule (by day)
Early contact with district about projects	----
Applicant submits completed packet; coordinating agency distributes packet and schedule	1-2
Review period (upon request)	3-44*
Last day for information request via coordinating agency	35
Last day for request for public hearing	44**
Deadline for comments to coordinating agency (verbal comments must be followed up in writing within 5 days)	44
Coordinating agency develops preliminary position; notifies applicant and districts with approved programs	54
Last day for written statement requesting elevation to director level	59
If a consensus is reached, consistency determination sent to reviewers; permit decision issued within 5 days	60***
If project is elevated, issue paper sent to reviewers	60****

- * 10 day extension for comment and decision deadlines is automatic for the Bering Straits CRSA.
- ** Coordinating agency must decide within 7 days whether to hold hearing. If so, agency must provide 15-30 days of notice and provide summary of hearing 5 days afterwards. Parties also have the same 7 days after receipt of summary to provide additional comments.
- *** Agency permit decision to be issued five days after consistency determination received unless statutorily impossible.
- **** Elevation can take up to 15 days at each level. If no consensus reached during elevation to directors, then elevated to Commissioner for policy direction.

The time line contains provisions for consistency conflict resolution at both the Director and Cabinet level, in addition to provisions for a public hearing. The Director level review will be initiated if OMB, the resource agencies, the applicant, and the coastal district are unable to reach agreement by day 34 for the 40-day permits or day 54 for the 60-day permits. Director level review takes place among the different department directors under the leadership of the department commissioners. Cabinet level review takes place between department commissioners with the governor providing leadership. Conflict resolution beyond this administrative system is through the court system. Additional review time will be provided for the approvals which are elevated to higher levels. Parties reviewing the permit application may request that the lead agency hold a public hearing prior to reaching a consistency determination. If such a request is received by day 34 or 17 (60 day and 40 day time lines) and the request raises concerns not adequately covered in the existing review, the lead agency will schedule and hold a hearing in the area affected by the project.

Relationship Between Federal Land and Activities and Consistency Determination

The coastal area includes all lands and waters within its boundaries not subject to the exclusive jurisdiction of the federal government. However, all federally authorized activities and direct federal actions conducted on these federal lands and waters must be consistent with the district program to the maximum extent practicable when such activities are likely to affect any land or water use or natural resources of the coastal zone (Section 307(c), Coastal Zone Management Act of 1972, as amended). Currently, most federal permits and direct federal actions are being reviewed for consistency under the ACMP. The review process for these projects follows the same procedure previously outlined.

State Notification of Affected Communities

The Bering Straits CRSA, through the Program Director, is responsible for coordinating the local consistency recommendation. However, the size of the CRSA, the number of communities within it, and the length of time required by intra-regional mail make it extremely difficult to get permit information out to affected communities and receive input on consistency recommendations within the permit review timeframes. In order to assist with local review and minimize requests for additional time for review, it is recommended that the coordinating agency send the coastal questionnaire/permit application and other pertinent information to the CRSA and all affected communities simultaneously when mail delivery is used. In situations where the coastal questionnaire/permit application and other pertinent information can be FAXed to affected communities which have only a single FAX number listed in Appendix B, it is recommended that the coordinating agency address the FAX to all appropriate organizations in that affected community. Appendix B provides mailing addresses, telephone, and telecopy (FAX) numbers for affected communities within the CRSA. The CRSA also requests that the lead agency notify the affected communities of the Final Consistency Determination.

A map of traditional use areas by specific communities is being developed in cooperation with the federal government to give guidance to lead agencies on notifying affected communities. Until this map is produced, the CRSA and Kewerak, Inc., will provide guidance with regard to affected communities. Appendix B provides mailing addresses and telephone numbers for affected communities in the CRSA. Further guidance for individual permits can be provided by the Program Director.

6.4 BERING STRAITS CRSA BOARD INVOLVEMENT IN CONSISTENCY DETERMINATIONS

Consistency Recommendation and Due Deference

After a local program has been incorporated into the Alaska Coastal Management Program, the CRSA Board is one of several reviewers that provide consistency recommendations to the lead agency. That agency then makes a consistency determination. However, the recommendation of the CRSA Board, along with other resource agency recommendations, must be given "due deference" in making the consistency determination. This means if the coordinating agency rejects a recommendation or stipulation requested by the District, for which the district is entitled to due deference, the coordinating agency must make a written finding stating the reasons for rejecting the stipulation. Where consistency conflicts arise between the CRSA Board and the lead agency, the lead agency will attempt to reach agreement (such as developing stipulations that address concerns). As discussed later in this section, the determination of the coordinating agency can be appealed. The Division of Governmental Coordination will function as the mediator during elevation through the appeal process.

In making a consistency recommendation, the CRSA Board can take three courses of action:

- A project can be considered consistent without any conditions or stipulations;
- A project can be considered consistent provided certain stipulations or alternative measures are incorporated into the project by the applicant to insure consistency with plan policies; or
- A project can be considered not consistent, with a recommendation to deny issuance of permits.

Procedure

In the case of state or federal regulated or initiated activities, the state agency involved or the Office of Management and Budget, Division of Governmental Coordination (OMB-DGC) acting as the coordinating agency will solicit the Bering Straits CRSA comments on consistency and give "due deference" to the district's interpretation of the policies in the plan. The point of contact with the Bering Straits CRSA for state reviews is the Program Director. Upon notification of a pending permit consistency review or other agency action (such as a Best Interest Finding) the Program director will notify the Bering Straits CRSA Board member(s) representing the CRSA district(s) affected by the proposed action. The Program Director will also contact the affected communities and the Regional Corporation to ascertain that they have been notified of the consistency review. If not, the Program Director will notify them of the impending activities and contact the lead agency to request that appropriate information be distributed. The Program Director will rely upon the information and policies in this plan, designated village and corporation contacts, and the Bering Straits Coastal Board members affected by the proposed action in making the consistency recommendation. Important major activities are addressed by the entire CRSA Board. More specific information on these people and their roles can be found in Section 6.6 of this chapter.

The Program Director upon notification of a pending permit or action by a state agency will, in consultation with the affected communities, Regional corporation contacts, and appropriate CRSA Board member(s), draft written recommendations on project consistency with the Bering Straits Coastal Management Plan. The written recommendations will include the reasons for the recommendation, with reference to applicable policies, and conditions, if necessary, which make the project or activity consistent with the Bering Straits Coastal Management Plan. This review will be accomplished within the time frame established by the permit review regulations.

The Program Director will be assisted in writing the recommendation by the network of appropriate village contacts. Input from native corporation land managers will also be solicited, as appropriate. The village contact is responsible for providing information on local community concerns about the proposed development. Some developments will be of interest to more than one village, or have regional implications. The Program Director will insure that simultaneous notice is given to every concerned party.

In addition to the village contacts and corporate land managers, the Program Director will have as a resource Bering Straits CRSA Board members from the area affected by the proposed action to act in an oversight capacity and to advise on recommendations. In the case of a major region-wide action or conflict, the Program Director and the affected Board member will poll or convene the entire Bering Straits CRSA Board. The Board may request a public meeting under the provisions of Permit Review procedures, and will determine the project's consistency and propose conditions for development founded upon both the Coastal Management Plan and the input from public meetings.

Stipulations or special conditions developed through this process will be recommended to the lead agency for placement on the state or federal permit. These conditions are based upon standards which meet the scope, intent and purpose of the plan policies and land use area designations.

Time Line

The Bering Straits Program Director will determine within ten calendar days as to whether the information submitted with a consistency review is adequate to determine consistency, or if more material is needed. If more information is required, the Program Director will notify the OMB-DGC permit coordinator or the coordinating agency and specifically identify the necessary information. The lead agency will determine if the request is reasonable, and then provide additional review time in accordance with procedures outlined in 6 AAC 50.110.

The Program Director in consultation with the local village contacts, native corporations as appropriate, and CRSA Board Members will reach a consistency recommendation within 24 days of receipt of a complete application for 40 day permits and 44 days for 60 day permits. Consistency recommendations will include any conditions necessary to make the project consistent with the Bering Straits Coastal Management Plan. Any disapproval or stipulations will include reference to the applicable policies and suggested changes which may make the project consistent.

Two additional review procedures apply to permits for major project activities. As presented in Section 6.7, the CRSA Board strongly recommends that developers make a pre-development presentation before the Board, at least six months prior to filing a permit application. The Board hopes to work with developers to initiate early communication and facilitate the permit review by the Board and local interests. Secondly, a permit application conference should be held within 10 working days of permit submittal. It will be coordinated by the lead agency and include the CRSA Board, representation from local communities and landowners, and appropriate state agencies.

Within 5 days of notice on major projects, the Bering Straits CRSA Program Director may request that the coordinating agency organize a permit application conference, to be held by day 10 of the review. The CRSA Board may, using the procedures outlined in 6 AAC 50.100, request that a public hearing on the project be held in the region to gather information or ideas. The coordinating agency may be requested to grant a request for extension of the review schedule to allow time for the hearing. A final recommendation on the project consistency will be issued within 10 days after any hearing or teleconference. All consistency recommendations for federal or state permits will be forwarded in a timely manner.

6.5 LOCAL INVOLVEMENT IN CRSA BOARD RECOMMENDATIONS

Communities, tribal governments, and major landowners within the Bering Straits CRSA will work with the CRSA Board in preparing their consistency recommendations.

Procedure

Upon receiving notice of a permit application, the Program Director will notify the Bering Straits CRSA Board member within whose district the activity is proposed to occur. The Program Director will also contact the affected communities and the Regional Corporation to ascertain that they have been notified of the consistency review. If not, the Program Director will notify them of the impending activities and contact the lead agency to request that appropriate information be distributed. The Program Director, and CRSA Board member(s) as appropriate, will work with community and landowner representatives to identify concerns and recommended conditions on development. If a Permit Application Conference is held, the Program Director will make sure that local concerns are presented. Local input to the CRSA Board's Consistency Recommendation must be received within 20 days for 40 day permits and within 30 days for 60 day permits. Where local concerns cannot be incorporated into the CRSA Consistency Recommendation, the Program director must provide a justification to the local contacts involved.

If affected communities, the Bering Straits CRSA Board, or program staff need additional information to complete their consistency determination, additional information may be requested by the CRSA up to day 35 of a 60 day review or up to day 25 of a 40 day review, under the 10-day extension allowed in the unorganized borough (Tables 6-2 and 6-3).

Any person or affected party may request, of the coordinating agency, that a public hearing be held on the project or activity undergoing a consistency determination. The Program Director, in coordination with CRSA Board members and affected parties, may decide that there is insufficient information to make a consistency determination and/or that the scope of a project requires a public hearing. If it is determined that a public hearing is in order, the Program Director shall request in writing that the coordinating agency hold a public hearing, and outline the need for such a hearing.

6.6 KEY CRSA BOARD PARTICIPANTS AND RESPONSIBILITY

CRSA Board

The Bering Straits CRSA Board is responsible for local implementation of the Coastal Management Program. They will oversee preparation of the CRSA consistency recommendation. They also have several other responsibilities:

- Annual review, and amendment if required, of the Bering Straits CRSA Program and review of permit actions approved under the program;
- Holding Pre-Development conference reviews for proposed major projects; and
- Coordination with local communities and landowners to ensure their participation in consistency recommendations, conferences, and plan amendments.

Bering Straits CRSA Board members will serve individually to act as a resource for the Program Director and in an oversight capacity, depending on whose districts are affected by the proposed action. If affected members are not available, the Board Chairperson will provide assistance. The draft consistency recommendation for each project should be reviewed or discussed with the Board member prior to being sent to the state. Projects and other actions with great significance for the coastal area will be brought to the Board member attention upon receipt. The Board member may recommend to the Chairperson to call a special session of the entire Coastal Board to determine consistency and/or conditions for development.

Program Director

The Program Director performs several key functions to insure that information and consistency determinations are processed expeditiously. The Program Director will function under the direction of the Coastal Board in representing the Board's interest in coastal affairs. Consistency recommendations are made by the Board and communication of these recommendations will be through the Program Director as staff to the Board.

As the initial contact point for state agencies, the Program Director must see that information has been received in a timely manner by the parties who are involved in the consistency process. Second, the Program Director must be able to determine if the information received is adequate for a consistency recommendation. Third, a decision must be made about which projects are routine or if approval of the project has great significance to the coastal area and should be reviewed and discussed with the Coastal Board. Routine approvals will be processed by the Program Director with the help of the affected Board member(s) and the village contacts. Projects with great significance for the coastal area may be subject to review by the entire Coastal Board. Fourth, project impacts will be weighed against the plan policies. A draft consistency recommendation for the Board, with appropriate wording and mitigating measures, will be developed by the Program Director. Fifth, feedback from the local contacts and other interested parties will be integrated into the consistency recommendation. Sixth, the Program Director will be responsible for responding with a district consistency recommendation in a timely manner. Seventh, the Program Director will provide staff support for the CRSA Board activities and keep the entire Board advised of activities. Eighth, the Coastal Program Director will be responsible for developing a tracking system which will monitor project compliance with any terms or conditions placed on the permit as a result of the local consistency recommendation. The Program Director will be responsible for the annual report to the state as required by regulation.

Village Contacts

Village contacts include representatives of the City Council, the IRA/Traditional Council, and the village corporation. The village contacts are responsible for providing local notice of the project. Village contacts will provide accurate and timely input back to the Program Director with detailed information on potential impacts and values in the area of the project. Village contacts will help the Program Director monitor project compliance with local concerns and conditions. They are expected to be knowledgeable about their own local area, but it is up to the Program Director to integrate their concerns into a consistency response based upon the plan policies. The villages will nominate a person to be the local contact, and the nominations will be certified by the Coastal Board.

Village and regional native corporations, who own large amounts of land within the coastal area, are also key local entities and will participate in the local consistency recommendation and in other relevant planning processes. The Program Director is required to contact corporate land managers regarding pending consistency requests, development activities, and to solicit their input and recommendations regarding the consistency determination. This input will be forwarded to the Board. This plan's policies will provide consistency guidelines for corporate lands.

6.7 PLANNING FOR MAJOR PROJECTS

Certain types of activities have the potential to significantly impact coastal resources and create major changes within the CRSA. The region's residents are anxious to participate in agency planning for large scale development projects and land management decisions. A consistency determination made at the time of a permit approval often takes place after the planning process is completed. When they don't participate in the planning process, local entities require more review time for permits. Conflicts that could have been avoided by mutual agreement are costly in terms of time and effort already spent, and in project delay.

There are three procedures that are strongly encouraged for major activities of area-wide concern: pre-development conferences; permit application conferences; and local partnership in planning activities.

Participation in these procedures has the following objectives:

- apply coastal management policies early in project or plan development;
- address problems and potential consistency determination conflicts prior to the approval stage;
- speed up subsequent permits or approvals through resolution of issues; and
- ensure the compatibility of future planning projects with the approved Coastal Management Program.

Any policies, standards, and stipulations developed through the three procedures will be amended to the Bering Straits CRSA Coastal Management Program through the amendment process outlined in Coastal Policy Council procedures.

Major Activities of Regional Concern

The following types of activities and plans are considered to be major activities of regional concern:

1. commercial timber sales
2. land disposals
3. Fire Area Management Plans
4. transportation corridor designation and/or construction (not associated with community facilities)
5. mineral exploration and/or development (projects requiring development of new airstrip or roads, and/or significant stream diversion)
6. energy exploration and/or development (coal, oil and gas not including preliminary exploring work such as upland seismic testing, and geothermal resources)
7. offshore mining
8. large scale gravel extraction (greater than 25,000 cubic yards)
9. classification or reclassification of state lands for the above uses
10. cleanup and disposal of hazardous wastes, including the DEFA Program
11. development of management guidelines for uses and activities on National Park Service, U.S. Fish and Wildlife Service, and Bureau of Land Management lands
12. Arctic Policy Development

Pre-Development Conferences

At least six months prior to filing a permit application, parties proposing activities on the major activity list are strongly encouraged to present a plan for activities to the CRSA Board. Presentations should include a description, location, and scheduling of the proposed activities. Within 30 days of notification of intent to make a presentation, the Bering Straits CRSA Board will hold a presentation meeting and arrange for the attendance of affected communities and major landowners. After the presentation, discussions may be held to identify issues and conflicts that need to be addressed prior to permit review and the Bering Straits CRSA Board preparation of a consistency recommendation. The Board will be ready to work with developers in project planning as requested. The Program Director will provide a written summary to the developer, outlining major consistency concerns. Copies will be sent to OMB-DGC and the coordinating agency. All pre-development conferences are open to the public, and public notice of the meeting will be provided. Affected resource agencies will be notified in advance by the CRSA Board and invited to attend.

Permit Application Conference

After a permit is filed or an intent of action given for activities in the major regional activity list, the lead agency will schedule a Permit Application Conference if formally requested by the CRSA. The purpose of this conference is to discuss the coastal management and permitting issues of the proposed activity, and to work towards resolution of potential issues and conflicts.

After receipt of the Permit Application, the Program Director will contact the lead agency, confirm that a conference is necessary, and assist in its scheduling. This conference should be scheduled not later than 10 working days after notification of the action is received by the Program Director. At a minimum, representatives of the lead agency, CRSA Board, affected communities, major landowners, and affected resource agencies will be invited to participate. Depending on the nature of the activity and travel constraints, the conference may involve a meeting or teleconference. Subsequent work sessions may be beneficial to reaching consensus on consistency.

The following aspects of the proposed action will be reviewed at this time:

- 1) benefits to the region, local community, and Alaska
- 2) scale or size of proposed activity
- 3) alternative locations and scales of development
- 4) timing alternatives for development
- 5) alternate site characteristics
- 6) impacts of the proposed activity on the people, subsistence resources, biological resources, air and water quality, and adjacent land use activities and landowners of the area
- 7) mitigation procedures
- 8) reclamation requirements
- 9) other conditions and stipulations for development as required

The Program Director will prepare a written finding of fact on each of the nine aspects. The findings will be included in the Board's response to the permit application. For activities of area-wide concern, additional permit application requirements are listed in Section 6.10.

Local Partnership in Planning Activities

Local partnership in state and federal planning activities that affect allocation of coastal resources in the Region is desirable. This partnership will help meet the requirements of 6 AAC 50 that state planning activities must be compatible with approved district coastal management programs.

The Bering Straits CRSA partnership in State and federal planning activities is strongly encouraged to allow local residents to work with agency decision-makers in planning for major activities. The term "partnership" is not intended to imply that the Bering Straits CRSA would assume equal authority in planning decisions, but to establish that there will be meaningful participation of the coastal district in planning processes. State and federal agencies are strongly encouraged to include representatives of the CRSA Board, affected communities, and major landowners in any planning teams formed to address regional planning and resource allocation.

This process establishes a partnership between the Coastal Board, local major landowners and state agencies. This planning process can successfully address the local needs of a subsistence-based economy. Through the use of existing state and federal planning efforts augmented by local landowners, state and corporate land and resource administrators can come to an agreement about how, where, and when activities should occur to assure protection and wise utilization of coastal resources. The Coastal Board will help identify the local representatives who are necessary to work with state and/or federal agencies to assure that the plans reflect local concerns and have credibility in both the district and in state government. Local participation is expected in major planning activities such as those described below:

- The Department of Natural Resources (DNR) develops land use plans containing land allocations and management guidelines known as Area Plans. Area Plans are developed for specific areas of the state to ensure that multiple uses of state land occur compatibly. An Area Plan can designate state land to be managed for the opportunities of habitat protection, commercial timber, land disposal areas, transportation corridors, mineral development, and energy development. Thus the DNR Area Plan addresses seven of the eight activities of area-wide concern.
- To fulfill those requirements, the Northwest Area Planning Team and its advisory committee included appropriate representatives of the Department of Natural Resources, major landowners in the district, other state departments as appropriate (such as ADEC and ADF&G), and the Coastal Board. The advisory committee made recommendations as a consensus group to the Commissioner of DNR. The CRSA Board actively participated in the development of the Northwest Area Plan. Board concerns included protection of subsistence resources, use areas, and associated habitat; closing sensitive fish and wildlife habitats to mineral entry; the protection of reindeer lawning areas and winter grazing areas; oil and gas lease sales; offshore mining; and land disposals.
- Fire management planning initiated by the Alaska Land Use Council will be used to satisfy coastal planning for fire management. This process, which involves local representatives, can meet planning needs for the portions of the fire management plan which include the Bering Straits CRSA district. A fire management plan has recently been completed for this area which meets the CMP requirements for fire management for most of the area.
- The Department of Transportation and Public Facilities prepares Regional Transportation Studies to determine transportation facility needs and program capital projects. As part of the regional transportation study, resource development needs are assessed, along with conflicts associated with transportation improvements. During plan preparation, local input is obtained through the steering committee and public hearings. Participation on the steering committee by the Bering Straits CRSA Board and major landowners will meet CRSA planning needs.

- Department of Natural Resources Oil and Gas Lease Sales can have significant effects on coastal resources. In the past, the state has used the Social, Environmental, and Economic Assessment (SEEA) process to assess impacts on coastal resources and provide limited public input. Local participation in early stages of oil and gas leasing is invited and encouraged.
- The Alaska Department of Fish and Game has prepared Regional Guides to provide information for departmental action on resource allocation, permitting, permit review, and policy formulation. Local participation in the revision and updating of Regional Guide resource information and recommendations will include the Bering Straits CRSA Board.
- The U.S. Fish and Wildlife Service has prepared management plans for the Alaska Maritime National Wildlife Refuge (AMNWR). By hosting frequent discussions and exchanging resource and management data, the CRSA Board and USFWS can work towards consistency with the coastal management program.
- The U.S. Army Corps of Engineers is responsible for administration of the DERA defense site waste cleanup program, which is currently cleaning up defense sites in the Bering Straits region. CRSA concerns include adequate public notice and involvement, methods of waste transport and disposal, access to cleanup sites, and the status of waste cleanup on past Department of Defense sites conveyed to Native Corporations.
- The National Park Service prepares conservation unit management plans for areas designated under ANILCA. Preparation of these plans includes input from local residents, communities, native corporations, and other state and federal agencies.
- The Bureau of Land Management prepares management framework plans and conducts other planning activities such as planning for designated Wild and Scenic Rivers.

The Bering Straits CRSA Board will play a partnership role in the following plans, by area of concern:

- commercial timber sales - DNR Area Plan and amendments
- land disposals - DNR Area Plan and amendments
- fire management plans - BLM Fire Management Plans
- transportation corridor designation and/or construction - DOT/PTF Regional Transportation Studies, DNR Area Plan and amendments
- mineral exploration and/or development - DNR Area Plan and amendments, SEEA or replacement Title 38 process
- energy exploration and/or development - DNR Area Plan and amendments
- large scale gravel extraction at new sites - DNR Area Plan and amendments and Bering Straits Regional Strategies
- classification or reclassification of state and federal lands for the above uses - DNR Area Plan and amendments
- Management plans and guidelines - AMNWR management plans, Bering Land Bridge National Preserve Management Plan
- hazardous waste cleanup - DERA public involvement

Planning Activities and Consistency

During the development of regional plans, permit applications for major projects may be submitted or other activities such as lease sales scheduled. In this situation the ongoing planning process should have input into the consistency determination process. Agencies and other parties responsible for consistency recommendations and determinations should consult with staff involved on planning teams for input on consistency.

District Program Amendment

After completion of regional planning efforts, the CRSA Board will propose amending the Bering Straits Coastal Management Program to include pertinent policies, classifications, and resource data developed mutually through the specific planning process. Any amendments proposed will follow authorized procedures for district program amendment.

6.8 AMENDMENTS AND REVISIONS

Every year a formal review of the coastal plan may be initiated by the Program Director. Changes which will keep the plan up to date and relevant can be proposed and examined. Some adjustments may be made to coastal boundaries or land use districts based on information from new studies. Policies may be further refined and standards adopted to expedite the consistency process. More detailed plans developed for special areas, such as AMSA's, will be incorporated into the coastal plan by CRSA Board action. This formal review gives residents, developers, local land owners, and communities in the coastal area an opportunity to propose amendments and become familiar with the plan and its policies.

Adoption of an agency plan which contains new policies or use areas or changes existing policies or use area boundaries is a significant amendment to the Bering Straits Coastal Management Plan. A plan which does not alter or add policies or use areas may be proposed as a routine amendment to the Bering Straits Coastal Management Plan. The amendment must be approved by the Coastal Policy Council.

6.9 MONITORING AND ENFORCEMENT

A management plan with ineffectual policy monitoring/enforcement is like a harpoon without a point - an impressive looking tool until called upon. Due to funding restrictions and logistical problems related to the size of the state, past monitoring of permitted development activities has not always been effective. AS 46.40.100 gives the State of Alaska enforcement responsibility for provisions of the Alaska Coastal Management Program; violations of Bering Straits Coastal Management policies and consistency-related permit stipulations are violations of the Alaska Coastal Management Program. The Bering Straits CRSA Board will strongly encourage the State to prosecute permit violations.

The Program Director is the key local individual in monitoring projects to ensure that local conditions on approval are carried out in the development process. Community contacts will be used by the Program Director in monitoring permit stipulations and conditions. Individuals and communities in the coastal area may report suspected violations to both the Coastal Program director and state resource agency. The Program Director will investigate the report and follow up with any appropriate action to insure state enforcement of the conditions. The Program Director will elicit state and/or federal agency support in monitoring and enforcement, including funding, and supply the agencies which are responsible for ensuring compliance with copies of local reports. This will include adherence to permit conditions and coastal policies.

6.10 PERMIT PRE-APPLICATION PACKET REQUIREMENTS

In order to assist the Bering Straits CRSA Board in making consistency recommendations, and avoid time-delays during project reviews, the following information should be included in pre-application packets for permits and other activities requiring consistency determinations:

- The description of the project or activity required should include a narrative which explains the purpose of the project or activity.
- A map at the most appropriate scale (may be hand drawn) which shows the location of the activity and any structures, roads or alterations of the area.
- The date and times the proposed activities will commence and end.
- Any precautions or special procedures that will be used to bring the project into conformity with the intent of the enforceable policies of this Coastal Plan should be identified.
- Written justification should be supplied if a "prudent and feasible" policy from Chapter 5 cannot be met.
- Supporting material such as studies and assessments of the project's impacts on coastal resources such as fish spawning areas and migration routes, should be submitted at this time.

If the project or activity falls under the jurisdiction of a regional plan incorporated into the CRSA program through amendment (such as a completed Area Plan), the developer may reference the plan and appropriate section and omit the preceding detailed information except for the Coastal Project Questionnaire.

For major activities of regional concern discussed in Section 6.7, the following additional information should be submitted as part of the pre-application packet:

- 1) need, necessity, and benefits for the activity
- 2) scale or size of proposed activity
- 3) alternative locations and scales of development
- 4) timing alternatives for development
- 5) alternate site characteristics
- 6) impacts of the proposed activity on the people, subsistence resources, biological resources, air and water quality, and adjacent land use activities and landowners of the area
- 7) mitigation procedures
- 8) reclamation requirements
- 9) consideration of the effectiveness of new technology

Chapter 7: Areas Meriting Special Attention

7.1 INTRODUCTION

Some coastal areas and resources merit special attention. Because of unique aesthetic, ecological, recreational, geophysical, or industrial values or combinations of these values, certain coastal areas and resources warrant additional management consideration. Such areas may be designated as "Areas Which Merit Special Attention" (AMSA). Once established, the AMSA will serve to alert local, state, and federal authorities to possible resource conflicts and the need for a more detailed assessment.

The Alaska Coastal Management Act (A.S. 46.40.210(1)) defines an AMSA as "...a delineated geographic area within the coastal area which is sensitive to change or alteration and which, because of plans or commitments or because a claim on the resources within the area delineated would preclude subsequent use of the resources to a conflicting or incompatible use, warrants special management attention, or which, because of its value to the general public, should be identified for current or future planning, protection or acquisition".

Criteria used as a basis for designating a coastal area as one which merits special attention (A.S. 46.40.210(1); 6AAC 80.160(b)) include:

1. Areas of unique, scarce, fragile, or vulnerable natural habitat, cultural value, historical significance, or scenic importance;
2. Areas of high natural productivity or essential habitat for living resources;
3. Areas of substantial recreational value or opportunity;
4. Areas where development of facilities is dependent upon the utilization of, or access to, coastal waters;
5. Areas of unique geologic or topographic significance which are susceptible to industrial or commercial development;
6. Areas of significant hazard due to storms, slides, floods, erosion or settlement;
7. Areas needed to protect, maintain, or replenish coastal land or resources, including coastal floodplains, aquifer recharge areas, beaches, and offshore sand deposits;
8. Areas important for subsistence hunting, fishing, food gathering, and foraging;
9. Areas with special scientific values or opportunities, including those where ongoing research projects could be jeopardized by development or conflicting uses and activities; and
10. Potential estuarine or marine sanctuaries.

Any one or combination of these categories can justify an AMSA designation. Many areas within the Bering Straits Region could qualify as AMSAs under the above-listed criteria. In many cases, though, specific federal laws already have been enacted to provide for the protection of valuable resource. In the Bering Straits CRSA, federal laws have created the Bering Land Bridge National Preserve, the Yukon Delta National Wildlife Refuge, and the Alaska National Maritime Refuge System. The CRSA Board believes that nominating these areas as AMSAs is an unnecessary duplication of government regulations.

The responsibility for designating areas which merit special attention within a coastal district program rests with the CRSA Board. Eleven coastal areas and areas with coastally dependent resources within the district have been recommended for consideration as areas which merit special attention.

1. Stuart Island/Kikikitanik
2. Portage Roadhouse
3. Golovin Bay
4. Rocky Point
5. Safety Sound
6. Cape Nome
7. Nome River
8. Pilgrim River
9. Port Clarence
10. Cape Prince of Wales
11. St. Lawrence Island
12. Solomon River

7.2 CRITERIA FOR AMSA DESIGNATION

A proposal for AMSA designation of an area may be included in a district program or as an amendment to a program. In both cases the proposed AMSA must secure approval of the Alaska Coastal Policy Council (CPC). In accordance with 5 AAC 80.160, each proposal must contain the following information:

1. The basis or bases for designation under AS 46.40.210(f) and 5 AAC 80.160(b);
2. A map showing the geographic location, surface area, and, where appropriate, bathymetry of the area;
3. A description of the area which includes dominant physical and biological features;
4. The existing ownership, jurisdiction, and management status of the area, including existing uses and activities;
5. The existing ownership, jurisdiction, and management status of the adjacent shoreland and sea areas, including uses and activities;
6. Present and anticipated conflicts among users and activities within or adjacent to the area, if any; and
7. A proposed management scheme which includes a description of proper and improper uses and activities of land and water resources within the area, a statement of policies which will be applied in managing the area, and an identification of the authority which will be used to implement the management scheme.

Management schemes for areas which merit special attention must preserve, protect, enhance, or restore the value or values for which the area was designated. The CRSA has identified these eleven areas for consideration as Areas Meriting Special Attention, and encourages future development of management plans for each area. More detailed management schemes for these areas are beyond the scope of this document. Designation as AMSAs and approval of management plans for them would be a significant amendment to the Bering Straits CRSA Coastal Management Program.

7.3 POTENTIAL AMSA CANDIDATES FOR FURTHER STUDY

The following areas within the coastal district boundary may warrant additional study and planning attention as potential AMSA locations. These areas, identified by USGS quadrangle, township, and range, are listed in Appendix C. A description and basis for potential consideration of each area is presented below.

7.3.1 Stuart Island/Klikitarik

Basis for Potential Designation:

A.S. 46.210(1)(a) - areas of unique, scarce, fragile, or vulnerable natural habitat, cultural value, historical significance, or scenic importance.

A.S. 46.40.210(1)(b) - areas of high natural productivity or essential habitat for living resources.

6 AAC 80.160(b)(1) - areas important for subsistence hunting, fishing, food gathering, and foraging.

A.S. 46.40.210(1)(d) - areas where development of facilities is dependant upon the utilization of, or access to, coastal waters.

Physical and Biological Features:

The proposed AMSA includes the coastline and offshore waters from Klikitarik to and including Stuart Island, excluding Cape Stephens. The coastline and offshore waters are home for migrating salmon, nesting shorebirds, seals, walrus, and beluga and gray whales. Herring spawning along St. Michael Bay between June 1 and July 15 sustain the region's only herring roe-on-kelp fishery as well as commercial and subsistence herring fisheries.

Ownership, Jurisdiction, and Management:

Private: Stebbins Native Corporation, St. Michael Native Corporation - surface; Bering Straits Native Corporation - subsurface.

State: Offshore waters and submerged lands from mean high water to the 3-mile limit.

Ownership, Jurisdiction, and Management of Adjacent Areas:

Federal: Yukon Delta National Wildlife Refuge offshore waters and submerged lands past the 3-mile limit; Cape Stephens is part of the Alaska Maritime Refuge System and, therefore, excluded from AMSA nomination under 6 AAC 85.040(1).

Present and Anticipated Conflicts:

The entire coastline and offshore waters from Klikitarik to Cape Stephens and Stuart Island is an important subsistence use area for the people of Stebbins and St. Michael. St. Michael Bay is one of five potential onshore oil and gas facility sites that could be utilized in the event that commercial quantities of hydrocarbons are discovered in Norton Sound. St. Michael boasts one of two deepwater ports in the region. Development would result in increased marine traffic and support facilities. The southern coast of Norton Sound was identified as an area with a high probability of acute or chronic oil pollution affecting important habitats or sensitive biological resources. Herring eggs and larvae are extremely sensitive to oil contamination.

Proposed Management Scheme:

To be prepared, contingent upon funding.

7.3.2 Portage Roadhouse

Basis for Potential Designation:

A.S. 45.40.210(i)(d) - areas where development of facilities is dependent upon the utilization of, or access to, coastal waters.

5 AAC 80.160(b)(1) - areas important for subsistence hunting, fishing, food gathering, and foraging.

Physical and Biological Features:

The proposed AMSA includes the coastline from Portage Roadhouse to Iron Creek. Beluga whale and bearded and ringed seals migrate along the coast. Nearby Norton Bay has been identified as a beluga calving area (Starr et al. 1981). Large schools of salmon, particularly pinks and silvers, are found along the coast. Nearby Kwiniuk, Tubutulik, and Kwik Rivers are important salmon spawning streams. An Alaska Department of Fish and Game count identified the Kwiniuk and Tubutulik Rivers as numbers one and three, respectively, for pinks in the region and numbers two and four for silvers (ADF&G 1983). These river drainages are also important for waterfowl.

Ownership, Jurisdiction, and Management:

Private: Elim Native Corporation.

State: All offshore waters and submerged lands from mean high water to the 3-mile limit.

Ownership, Jurisdiction, and Management of Adjacent Areas:

Private: Elim Native Corporation.

Present and Anticipated Conflicts:

The Portage Roadhouse area has been identified as one of five potential onshore oil and gas facility sites should commercial quantities of hydrocarbons be discovered in the Lease 57 area (Woodward-Clyde 1984). Due to the onshore topography and offshore bathymetry, Portage Roadhouse is the only feasible location in this area (Woodward-Clyde 1984). In this area, ocean currents move along the coast in an easterly direction (Starr et al. 1981).

Seasonal subsistence activities along the coast engaged in by Elim and Golovin residents include beluga whale, bearded seal, and ringed seal hunting and crab fishing in winter and spring; salmon setnetting in summer; and moose hunting in fall. Location of onshore facilities in this area will create impacts primarily for the village of Elim (Woodward-Clyde 1984). Increased traffic or chronic oil pollution resulting from onshore oil and gas facilities could adversely affect subsistence resources.

Proposed Management Scheme:

To be prepared, contingent upon funding.

7.3.3 Golovnin Bay

Basis for Potential Designation:

A.S. 48.40.210(1)(b) - areas of high natural productivity or essential habitat for living resources.

8 AAC 80.160(b)(1) - areas important for subsistence hunting, fishing, food gathering, and foraging.

Physical and Biological Features:

The proposed AMSA includes Golovnin Bay, Golovnin Lagoon, and Fish River Flats. These areas provide habitat for nesting and feeding waterfowl, salmon (primarily chums, some kings and pinks), herring, crab, spotted and bearded seals, beluga whales, and clams. Other marine inhabitants include boreal and pond smelt; sandlance; humpback, broad, and round whitefish; Bering and least cisco; Arctic char; saffron cod; starry and Arctic flounder; and tubenose, Bering and sturgeon poachers (Barton 1978). Kelp harvested along the coast also provides an important food source (Boone, personal communication).

Golovnin Bay also contains potential deposits of precious metals.

Ownership, Jurisdiction, and Management:

State: Submerged waters in Golovnin Bay and Golovnin Lagoon.

Private: White Mountain Native Corporation - surface selection; Bering Straits Native Corporation - subsurface selection of Fish River Flats.

Ownership, Jurisdiction, and Management of Adjacent Areas:

Private: Golovin Native Corporation and White Mountain Native Corporation - surface selection; Bering Straits Native Corporation - subsurface selection.

Present and Anticipated Conflicts:

Several offshore mining permits were granted in Golovnin Bay in the late 1970's (Gallagher, personal communication). Currently, the Department of Natural Resources is reviewing permits to determine if deposits exist. If DNR determines that the probability of commercial mineral deposits is likely the agency may convert the permits to leases. Applicants will have seven years to prove their claims.

Commercial fishing, and potentially processing, provide much of the income in Golovin. Since juvenile herring are extremely sensitive to increased turbidity (Canada Department of the Environment 1977), dredging associated with offshore mining could jeopardize subsistence and commercial herring fisheries. A detailed management plan is needed to evaluate mining and its effects on the biological resources of the area to determine whether mining and commercial fish harvesting are compatible.

Proposed Management Scheme:

To be prepared, contingent upon funding.

7.3.4 Rocky Point

Basis for Potential Designation:

A.S. 45.40.210(1)(a) - areas of unique, scarce, fragile, or vulnerable natural habitat, cultural value, historical significance, or scenic importance.

A.S. 46.40.210(1)(b) - areas of high natural productivity or essential habitat for living resources.

6 AAC 80.160(b)(1) - areas important for subsistence hunting, fishing, food gathering, and foraging.

Physical and Biological Features:

The proposed AMSA includes the coastline from Rocky Point to Topkok Head. This stretch of coast contains the largest mainland seabird colonies in the region. Estimates of bird populations at Bluff, the largest of the colonies, range between 40,000 and 90,000 (Drury 1980). Murres comprise about 75 percent of the nesting birds. These seabirds feed offshore. Endangered peregrine falcons nest at several locations along the cliffs. The eastern portion of this coast provides important subsistence resources for the villages of Golovin and White Mountain. Villagers catch herring and crab along the coast and gather eggs at several seabird colonies.

Marine waters in the area are among the most productive in the region (Wolotira 1977). Offshore waters support the largest known concentrations of sandlance in the region (Starr et al. 1981), a vital food source for fish-eating seabirds. The reproductive success for some seabirds largely depends on the availability of sandlance. Herring spawn along the rocky shores, and salmon, capelin, king crab, and several species of bottomfish range along the coast.

Identified upland and offshore mineral deposits include gold, copper, lead, zinc, chromium, molybdenum, and silver.

Ownership, Jurisdiction, and Management:

Private: White Mountain Native Corporation - surface; Bering Straits Native Corporation - subsurface.

State: All offshore waters and submerged lands from mean high water to the 3-mile limit.

Federal: Offshore waters and submerged lands beyond the 3-mile limit. Bluff and Topkok Head are part of the Alaska National Maritime Refuge System.

Ownership, Jurisdiction, and Management of Adjacent Areas:

Private: White Mountain Native Corporation - surface; Bering Straits Native Corporation - subsurface.

Federal: Offshore waters and submerged lands beyond the 3-mile limit. Bluff and Topkok Head are part of the Alaska National Marine Refuge System.

Present and Anticipated Conflicts:

Onshore mining is an historic and on-going activity at Bluff. Offshore gold dredging was attempted west of Bluff in 1983. Without adequate safeguards, offshore mining in this area could degrade the marine habitat and

adversely effect subsistence resources and subsistence harvest activities. Concerns associated with dredging in this area include increased turbidity, damage to herring eggs and larvae, interference with migrating salmon fry, and noise which could disrupt seabirds at nearby colonies.

Natural mercury seepage is high in the area both onshore and offshore. Offshore dredging could stir up settled mercury, significantly increasing mercury levels in the marine water column. If mercury entered the food chain, it could contaminate subsistence and commercial species and ultimately affect humans.

Proposed Management Scheme:

To be prepared, contingent upon funding.

7.3.5 Safety Sound

Basis for Potential Designation:

A.S. 46.40.210(1)(b) - areas of high natural productivity or essential habitat for living resources.

A.S. 46.40.210(1)(c) - areas of substantial recreational value or opportunity.

6 AAC 80.160(b)(1) - areas important for subsistence hunting, fishing, food gathering, and foraging.

Physical and Biological Features:

The proposed AMSA includes Safety Sound, Port Safety, and the lower drainages of the Solomon, Bonanza, and Eldorado Rivers. In spring and fall this area supports nesting and feeding waterfowl and shorebirds. Woodby and Divoky (1982) estimated that 28,000 birds occupied Safety Sound during their aerial surveys. A channel extending from Safety Sound to Bonanza River and adjoining marshes and lagoons (including wetlands of the lower Flambeau and Eldorado Rivers) hosts large flocks of summering geese, cranes, and ducks, particularly in August and September (Drury 1980).

The Flambeau and Eldorado Rivers, which flow through the Solomon River and empty into Safety Sound, support salmon, Arctic char, and grayling. The lower Bonanza and Solomon Rivers flow through important wetlands in the Solomon River AMSA before emptying into Norton Sound. Birds, bird eggs, fish, and moose in the area provide important subsistence and recreational resources for Nome and Solomon residents.

Ownership, Jurisdiction, and Management:

Private: Sitnasuak Native Corporation, Solomon Native Corporation - surface; Bering Straits Native Corporation - subsurface.

State: Navigable streams and all offshore waters and submerged lands from mean high water to the 3-mile limit.

Ownership, Jurisdiction, and Management of Adjacent Areas:

City of Nome, Sitnasuak Native Corporation, Solomon Native Corporation - surface; Bering Straits Native Corporation - subsurface. State: state lands and navigable streams.

Present and Anticipated Conflicts:

Possible conflicting uses include potential oil and gas facilities at Cape Nome, and the effects of upper watershed mining activities on wetlands, fish, and birds important to subsistence activities of the region's residents.

Oil and gas facilities, associated aircraft traffic, and other potential disturbances (including chronic pollution from an oil terminal) could significantly reduce use of the area by birds (Dames and Moore 1980).

The City of Nome Coastal Management Program also recommended Safety Sound as an AMSA.

Proposed Management Scheme:

To be prepared, contingent upon funding.

7.3.6 Cape Nome

Basis for Potential Designation:

A.S. 46.210(d) - areas where development of facilities is dependent upon the utilization of, or access to, coastal waters.

Physical and Biological Features:

The proposed AMSA includes Cape Nome and offshore waters. Moose and waterfowl occupy the Cape Nome area, located near the mouths of the biologically important Flambau and Eldorado Rivers and Safety Sound. The latter is home to an estimated 25,000 birds (Woodby and Divoky 1982).

Ownership, Jurisdiction, and Management:

Private: Sitsnuak Native Corporation - surface; Bering Straits Native Corporation - subsurface.

State: All waters and submerged lands from mean high water to the 3-mile limit.

Ownership, Jurisdiction, and Management of Adjacent Areas:

City of Nome.

State of Alaska.

Present and Anticipated Conflicts:

Sitsnuak and the Bering Straits Native Corporation have an operational rock quarry and loading facility located within this potential AMSA. Should Outer Continental Shelf (OCS) development occur, Cape Nome has been repeatedly mentioned as a primary site for development of land-based facilities (Berger et al. 1980, Woodward-Clyde 1984). These facilities could include oil storage, loading facilities, warehouses, housing, and related support facilities. A critical management concern is that the siting and review process for land-based facilities must be subject to some review and control by the local communities. Adequate provisions must be made for housing, transportation, community facilities, and services.

Proposed Management Scheme:

To be prepared, contingent upon funding.

7.3.7 Nome River

Basis for Potential Designation:

A.S. 46.40.210(1)(b) - areas of high natural productivity or essential habitat for living resources.

A.S. 46.40.210(1)(c) - areas of substantial recreational value or opportunity.

6 AAC 80.150(b)(1) - areas important for subsistence hunting, fishing, food gathering, and foraging.

Physical and Biological Features:

Despite its small size, the Nome River is a productive river (ADF&G 1983). Biologists have documented 17 fish species in this system (ADF&G 1979). The river provides habitat for four salmon species in approximately the first 30 miles (ADF&G 1983). While chum salmon have been declining, coho salmon have been increasing (ADF&G 1984). In addition to fish, waterfowl frequent the Nome River watershed in spring and summer (ADF&G 1984). Willow thickets along the shores provide browse and cover for moose and smaller game like hares and ptarmigan (ADF&G 1984). The river's plume into Norton Sound attracts food for marine mammals (ADF&G 1984). Three species of seal -- bearded, ringed, and spotted -- are found nearshore, especially in spring and fall. King crab are available offshore in winter and spring.

Ownership, Jurisdiction, and Management:

Private: Silnasuak Native Corporation - surface; Bering Straits Native Corporation - subsurface; Frontier Realty.

State: State lands and all navigable waters.

City of Nome.

Ownership, Jurisdiction, and Management of Adjacent Areas:

Private: Silnasuak Native Corporation - surface; Bering Straits Native Corporation - subsurface.

Present and Anticipated Conflicts:

Cabin sites are being sold in the river's upper reaches. Several homes now occupy the riverbank in the upper part of the drainage. Increased residential use could put more pressure on fish stocks, and sewage and wastewater from houses could contaminate the stream and lower its productivity.

The river valley contains several mining claims. Mining activity might boost the local economy but might also degrade the watershed and reduce fish populations and harvests.

The City of Nome Coastal Management Program also recommended designation of the Nome River as an AMSA.

Proposed Management Scheme:

To be prepared, contingent upon funding.

7.3.8 Pilgrim River

Basis for Potential Designation:

A.S. 46.40.210(1)(a) - areas of unique, scarce, fragile, or vulnerable natural habitat, cultural value, historical significance, or scenic importance.

A.S. 40.210(1)(c) - areas of substantial recreational value or opportunity.

6 AAC 80.160(b)(1) - areas important for subsistence hunting, fishing, food gathering, and foraging.

Physical and Biological Features:

The proposed AMSA includes the Pilgrim River and Salmon Lake. Salmon Lake is home to the only known red salmon in the region and the farthest north red salmon run in the state (Lee, personal communication). ADF&G fish surveys conducted between 1974 and 1983 reveal that the average run is below 800 fish. The Salmon Lake/Kuzitrin drainage is also an important moose hunting area for Nome residents.

Pilgrim Hot Springs has been an important recreational site since the turn of the century and has been identified as having geothermal potential.

Ownership, Jurisdiction, and Management:

Private: Mary's Igloo Native Corporation - surface; Bering Straits Native Corporation - subsurface; Bering Straits Native Corporation - surface and subsurface (ANCSA Sec. 14(h)(8)).

State: State lands and all navigable waters (undetermined for Pilgrim River).

Ownership, Jurisdiction, and Management:

Private: Teller Native Corporation - surface; Bering Straits Native Corporation - subsurface.

Present and Anticipated Conflicts:

Within this potential AMSA there is potential for recreational and energy use of the hot springs.

Since completion of the Nome/Kougarok road in 1962, the red salmon run has reportedly declined as access was opened to Salmon Lake (Lee, personal communication). Although Alaska Department of Fish and Game regulations prohibit salmon fishing at Salmon Lake, enforcement is lax.

The first state land disposal in the region, an 800-acre offering near the Pilgrim River, is currently under consideration. The entire area has strong recreational potential; however, a detailed management plan is needed for public and private lands before the natural resources of the area are destroyed.

Proposed Management Scheme:

To be prepared, contingent upon funding.

7.3.9 Port Clarence

Basis for Potential Designation:

A.S. 48.40.210(1)(b) - areas of high natural productivity or essential habitat for living resources.

A.S. 48.40.210(1)(d) - areas where development of facilities is dependent upon the utilization of, or access to, coastal waters.

6 AAC 80.160(b)(1) - areas of importance for subsistence hunting, fishing, food gathering, and foraging.

Physical and Biological Features:

The proposed AMSA includes Port Clarence, Grantley Harbor, Tuksuk Channel, and Imuruk Basin. Grantley Harbor and Imuruk Basin, and Tuksuk Channel which connects them, are among the region's most productive marine fish habitats. These waterbodies, located due east of Port Clarence, also serve as important nesting habitat for shorebirds and waterfowl. Large flocks of Canada geese and cranes pass through the area in late summer; 6,700 cranes were observed in 1981 (Woodby and Divoky 1982).

Herring spawn in Grantley Harbor and Port Clarence from late June through early July (Barton 1978). Based on trawl surveys conducted in 1976, in addition to providing habitat for juvenile and adult herring, Grantley Harbor and Imuruk Basin support juvenile pink and chum salmon and boreal and pond smelt. Sand lance (particularly important for fish-eating seabirds); humpback, broad, and round whitefish; Bering and least cisco; Arctic char; saffron cod; capelin; rock greenling; Alaska plaice; starry and Arctic flounder; nine-spined and three-spined sticklebacks; and tubenose poachers also serve as important links in the marine food chain.

Ownership, Jurisdiction, and Management:

Private: Brevig Mission Native Corporation, Teller Native Corporation - surface; Bering Straits Native Corporation - subsurface.

State: All waters and submerged lands within Port Clarence, Grantley Harbor, Tuksuk Channel, and Imuruk Basin.

Federal: U.S. Coast Guard.

Ownership, Jurisdiction, and Management of Adjacent Areas:

Private: Brevig Mission Native Corporation, Teller Native Corporation - surface; Bering Straits Native Corporation - subsurface.

Federal: BLM lands east of Imuruk Basin.

Present and Anticipated Conflicts:

Port Clarence provides the best sheltered anchorage north of Dutch Harbor (Barton 1978) and has been identified as one of five sites in the region with potential as a center for onshore facilities in the event that commercial quantities of hydrocarbons are discovered (Woodward-Clyde 1984). The Port Clarence/Teller area has also been cited as a potential port for minerals transported by road or railroad from interior Seward Peninsula mining areas.

Herring support locally important subsistence and commercial fisheries. Herring eggs and larvae are extremely sensitive to the kind of chronic oil pollution that could occur if Port Clarence becomes a major port facility.

Many marine species have demersal eggs which may be buried in sand until they hatch. Oiling of these areas and subsequent movement of oil into sediments could cause high mortalities to hatching fish (Zimmerman 1980).

Proposed Management Scheme:

To be prepared, contingent upon funding.

7.3.10 Cape Prince of Wales

Basis for Potential Designation:

A.S. 46.40.210(1)(b) - areas of high natural productivity or essential habitat for living resources.

6 AAC 80.160(b)(1) - areas important for subsistence hunting, fishing, food gathering, and foraging.

Physical and Biological Features:

The proposed AMSA includes the coastline from Cape Prince of Wales to Espeyberg. The barrier islands and offshore waters and submerged lands off the northern coast of the Seward Peninsula contain many species of birds, marine mammals, and fish. The rivers and lagoons along the northern coast of the Seward Peninsula provided the only extensive sheltered water between the Arctic Ocean coast and the Yukon River delta. The area is unusually productive for this latitude (Fortenberry 1974). Waterfowl species include brant, pintail, eiders, swans, white-fronted geese, and snow geese. Crab and shrimp populations are widespread throughout the area. Marine mammals that inhabit the coast and coastal waters include polar bear; walrus; spotted, ring, and bearded seals; and beluga and gray whales. Salmon, flounder, whitefish, herring, lingcod, and smelt migrate along the coast.

Commercial quantities of oil and natural gas may also exist in the area.

Ownership, Jurisdiction, and Management:

State: All offshore waters and submerged lands from mean high water to the 3-mile limit.

Ownership, Jurisdiction, and Management of Adjacent Areas:

Private: Shishmaref Native Corporation, Inalik Native Corporation, and Wales Native Corporation - surface selection; Bering Straits Native Corporation - subsurface selection.

Federal: National Park Service.

Present and Anticipated Conflicts:

The State of Alaska has proposed to offer tracts in the Hope Basin for oil and gas lease sales. A detailed management plan is needed to study, coordinate, and regulate permitted and nonpermitted activities in these coastal waters to protect fish and wildlife populations and habitats, and to insure access to subsistence resources.

Proposed Management Scheme:

To be prepared, contingent upon funding.

7.3.11 St. Lawrence Island

Basis for Potential Designation:

A.S. 46.40.210(1)(b) - areas of high natural productivity or essential habitat for living resources.

6 AAC 80.180(b)(1) - areas important for subsistence hunting, fishing, food gathering, and foraging.

Physical and Biological Features:

The proposed AMSA includes the coastline of St. Lawrence Island. This 1,27 million-acre island sustains about one thousand people, approximately 2.7 million seabirds (more than half of the region's seabird population), as many as 100,000 walrus, and other wildlife. These wildlife resources are of local, regional, and statewide importance.

Seven colonies along the north side of the island support most of the seabirds. Some colonies extend for several miles along cliffs 50 to 1,000 ft high. The largest colony contains as many as 750,000 birds at densities greater to 10 birds per square meter (Drury 1980). Approximately 62 percent of the crested auklets of the eastern Bering Sea region seasonally occupy the island (Drury 1980).

In addition to millions of seabirds, the island's extensive wetlands and lagoons support substantial numbers of migratory waterfowl and shorebirds. Altogether, 22 waterfowl species use the island, and at least 12 species nest there (Fay 1961). Approximately 9,000 ducks, geese, and swans nest near the island's lagoons and lakes. Another 25,000 birds feed and molt in these areas. In winter the open water around the island supports about 500,000 oldsquaws and 50,000 eiders (DOI 1982). In July and August 10,000 to 20,000 immature emperor geese (Fay 1961) from the Yukon Delta and perhaps the Soviet Union (King and Dau 1980) feed along the island's northern and southern coasts. These areas may represent the principal summering grounds for populations of immature emperor geese in Alaska and Siberia. Snow geese from Wrangell Island (USSR) rest on the island in late September before continuing their southern migration.

In spring and fall large herds of walrus come ashore on St. Lawrence Island. In October 1978, as many as 90,000 were hauled out on Salgaht, Maknik, and Klategak Points. Others gathered at Chibukak and southwest of Savoonga (Frost et al. 1982). Birds, bird eggs, walrus, polar bears, reindeer, hares, Arctic fox, bowhead whales, seals, crab and fish provide the bulk of the villager's diet (Ellanna 1980). The islanders residents are particularly dependent upon subsistence because of few employment opportunities, the high cost of store-bought food, and strong cultural ties to subsistence pursuits.

The island also has great archaeological resources, with 35 known abandoned villages and many more seasonal camps which allow for invaluable insight and appreciation of early Siberian Yuit life.

Ownership, Jurisdiction, and Management:

State: All offshore waters and submerged lands from mean high water to the 3-mile limit.

Ownership, Jurisdiction, and Management of Adjacent Areas:

Private: Gambell Native Corporation, Savoonga Native Corporation.

Present and Anticipated Conflicts:

In March 1984 the Department of Interior, Minerals Management Service, sold tracts in OCS Lease Sale 83. This sale, and the following proposed lease sales, may have a direct and significant impact on the St. Lawrence Island coastline: Navarin Basin Lease Sale 107 and Norton Sound Lease Sale 100.

No land or resource management plans have been completed for this area. A joint Gambell/Savoonga land use plan is currently being prepared. State-owned offshore waters and submerged lands included in this AMSA nomination are not covered by the Department of Natural Resources (DNR) Northwest Area Plan.

AMSA designation for this area would provide the impetus for state/private management of these regionally important coastal resources.

Proposed Management Scheme:

To be prepared, contingent upon funding.

7.3.12 Solomon River

Basis for Potential Designation:

A.S. 46.40.210(1)(b) - areas of high natural productivity or essential habitat for living resources.

A.S. 46.40.210(1)(e) - areas of unique geologic or topographic significance which are susceptible to industrial or commercial development.

6 AAC 80.160(b)(1) - areas important for subsistence hunting, fishing, food gathering, and foraging.

Physical and Biological Features:

The proposed AMSA includes the drainage of the Solomon River upstream from the proposed Safety Sound AMSA (Chapter 7.3.5). The Solomon River provides important habitats for salmon, Arctic char, grayling, and moose which are utilized for subsistence by residents of Solomon. The Solomon River drainage is also recognized for its rich mineral potential.

Ownership, Jurisdiction, and Management:

Private: Solomon Native Corporation - surface; Bering Straits Native Corporation - subsurface.

State: State lands and navigable streams.

Ownership, Jurisdiction, and Management of Adjacent Areas:

Private: Solomon Native Corporation - surface; Bering Straits Native Corporation - subsurface.

State: State lands and navigable streams.

Present and Anticipated Conflicts:

Possible conflicting uses include the exploration and development of mineral resources within the Solomon River drainage and the maintenance of habitats important to fish and wildlife and subsistence use areas utilized by the region's residents. Concerns have also been identified for potential effects of development activity within the drainage on coastal habitats and wetlands of the lower Solomon River within the proposed Safety Sound AMSA.

Proposed Management Scheme:

To be prepared, contingent upon funding.

Chapter 8: Public Participation

8.1 INTRODUCTION

The Bering Straits Coastal Management Program had an extensive background of public participation and involvement during development of the coastal management program components. The program began in late 1979 when Kaverak, Inc., the native nonprofit organization for the Bering Straits Region, requested that the State hold an election on formation of a Coastal Resource Service Area (CRSA). In mid-1980, residents of the region voted to form the CRSA and shortly thereafter elected a seven-member Board. The first Board meeting occurred in November 1980. Public participation during plan development concentrated on educating the public on the status, content, and purpose of the plan; assimilating and verifying resource information; and holding agency and public meetings for review of draft plan products.

8.2 PUBLIC EDUCATION

From late 1980 to December 1982, funding constraints limited regular Board meetings. Board meetings were held in a different village each time (Table B-1) to allow village residents to learn about coastal management and provide an opportunity to express their concerns about coastal issues. Most of the village concerns focused on outer continental shelf lease sales, related potential for adverse impacts on subsistence resources, and protecting the region's predominantly subsistence way of life.

During 1983 and mid-1984, staff members continued to hold public education and resource verification meetings in each of the district's 15 second-class cities (Table B-1). Additionally, CRSA staff and Board members gave presentations to a number of groups and conventions (Table B-2).

Between April 25 and June 19, 1983, the CRSA Board contracted with Alaska Attitudes, a professional polling firm, to conduct an attitude survey in the region. Residents were asked their views concerning management of coastal resources, the extent of their subsistence and commercial fishing activities, and their opinions on oil, gas, and alternative energy development. To administer the survey, the CRSA Board hired one resident from each village who was then trained by Alaska Attitudes to conduct survey interviews. Based on the 1980 U.S. Census, percentage of each village's population was sampled in proportion to its size. A total of 288 face-to-face interviews, or approximately 25 percent of the region's households, were surveyed.

From survey information CRSA staff produced an initial draft of Issues, Goals, and Objectives for the Bering Straits Coastal Management Plan (Chapter 2). A summary of survey results was mailed to every village in the region. In late 1983 the CRSA Board and staff prepared a summary brochure on the program. Seven hundred and fifty copies were distributed regionwide and to government agencies and organizations on the district's mailing list. The brochure provided information on the Bering Straits Coastal Management Plan and summarized community attitude results.

Between September and November 1983, CRSA staff produced a slide show which explained the coastal management program in the Bering Straits region at village and other public meetings. Four editions were produced: English; Inupiaq; St. Lawrence Island Yupik; and Central Yupik. The slide show was very effective.

Between 1982 and 1985, articles were published in the Bering Straits School District's monthly newsletter, *Strait Talk*, to inform the public of the progress of the coastal management program. Periodic articles also appeared in the *Nome Nugget* in a column entitled, "Coastal Resource Notes". Regular program status reports from the Board Chairman to local municipalities, IRA/Traditional Councils, and village corporations has been ongoing since 1980.

In November 1983 Kawerak, Inc., contracted with the Alaska Department of Community and Regional Affairs to develop the Bering Straits Regional Strategy to establish an organizational structure representing regional groups and publicly elected bodies. The organization and planning process are to address changes caused by economic development; to identify regional issues, goals, and policies; and to provide a constructive forum to enable quality regional investigation and response to issues of concern. The Bering Straits CRSA is represented on the Planning Board. The CRSA board regards regional strategy as a good forum for discussion of coastal management issues.

From spring 1985 through spring 1986, the CRSA Board and staff conducted public hearings in all the incorporated communities of the region on the Public Hearing Draft of the Bering Straits CRSA coastal management program.

TABLE 8-1: BERING STRAITS CRSA BOARD MEETINGS AND PUBLIC MEETINGS

PLACE	DATES OF ADMINISTRATIVE MEETINGS	DATES OF PUBLIC MEETINGS
Unalakleet	9/23-24/79 (Organizational Meeting)	
Savoonga	11/5/80	
Gambell	11/8/80	11/6/80
Nome	11/7/80	
Shaktoolik	2/23/81	2/23/81
Unalakleet	2/25/81	2/25/81
Elim		3/23/ 81 (with DNR)
Nome	4/10/81	
Unalakleet	4/30/81	
Unalakleet	5/1/81	
Unalakleet	6/4/81 (Executive Committee)	
Unalakleet	9/3/81	
Elim	10/1/81	10/1/81
Koyuk	10/2/81	10/2/81
St. Michael	1/11/82	1/11/82
Stebbins	1/12/82	1/12/82
Golovin	3/23/82	3/23/82
White Mountain	3/24/82	3/24/82
Unalakleet	5/14/82	
Unalakleet	6/23/82	
Unalakleet	8/3/82	
Unalakleet	9/23-24/82	
Unalakleet	12/9-10/82	
Nome	2/2/83	2/3/83

TABLE 8-1: (continued)

PLACE	DATES OF ADMINISTRATIVE MEETINGS	DATES OF PUBLIC MEETINGS
Wales		2/21/83
Shishmaref		2/23/83
Diomedes		2/24/83
Unalakleet	3/15-16/83 (Joint meeting with Central/Nit CRSA and NANA CRSA Boards)	
Unalakleet	3/16/83	
Teller	4/6/83	4/6/83
Gambell		5/4/83 (with Sivuka Corporation and City)
Savoonga		5/5/83
Nome	6/4/83	
Elim	10/25/83	
Unalakleet	11/17/83	
Shaktolik		1/10/84
Koyuk		1/12/84
Shishmaref	1/23-24/84	1/24/84
Stebbins		2/6/84
St. Michael		2/7/84
Diomedes		3/9/84
Wales		3/10/84
Gambell	3/15/84	3/14/84
Savoonga	3/16/84	3/16/84
Nome		3/27/84
Elim		3/28/84
White Mountain		3/29/84
Golovin		3/30/84
Unalakleet		4/13/84
Unalakleet	4/18-19/84 (workshop)	
Unalakleet	5/2-3/84	
Shishmaref	7/10/84	7/9/84
Nome (King Island Community)	4/27/84	

TABLE 3-1: (continued)

PLACE	DATES OF ADMINISTRATIVE MEETINGS	DATES OF PUBLIC MEETINGS
Unalakleet	9/25/84	
Unalakleet	1/15/85	
Unalakleet	2/25/85	
Unalakleet	4/29/85	4/29/85
Nome		4/30/85
Teller		5/2/85
Brevig Mission		5/2/85
Shaktolik		5/8/85
Koyuk		5/9/85
Elm		5/11/85
Gatowin		5/13/85
White Mountain		5/14/85
Shishmaref		5/17/85
Diomedes		5/18/85
Wales		5/19/85
Brevig Mission		9/10/85
Shishmaref		9/11/85
Unalakleet	9/27/85	
St. Michael		9/30/85
Teller		11/5/85
Brevig Mission		11/7/85
St. Michael		11/10/85
Stebbins		11/13/85
Unalakleet	11/15/85	
Solomon		11/18/85
Nome (King Island Community)	11/20/85	
Gambell		11/21/85
Seavanga		11/25/85
Koyuk		12/3/85
Shaktolik		12/5/85
Shishmaref		12/9/85

TABLE 8-1: (continued)

PLACE	DATES OF ADMINISTRATIVE MEETINGS	DATES OF PUBLIC MEETINGS
Wales		12/11/85
White Mountain		12/13/85
Golovin		12/16/85
Elim		12/17/85
Shaktootik		12/18/85
Gambell		1/25/86
Savoonga		1/26/86
Stebbins	2/25/86	
Unalakleet	4/28/86	
Unalakleet	6/19/86	
Unalakleet	8/28-29/86	
Unalakleet	9/17-18/86	

TABLE 8-2: BERING STRAITS CRSA BOARD/STAFF PRESENTATIONS

PLACE	DATE	GROUP
Nome	1/21/83	AVCP - Kawerak Convention
Nome	3/10/83	Bering Straits Women's Spirit Rising Conference
Nome	3/21/83	Kawerak Executive Committee
Nome	1/25/84	Kawerak Board of Directors
Shishmaref	2/14/84	North & Northwest Mayors' Conference
Nome	2/22/84	Elders' Conference
Nome	3/28/84	Council Native Corporation Representative and DCRA Staff Meeting
Nome	5/17/84	Department of Transportation
Nome	5/18/84	Bering Straits Native Corporation Board of Directors
MI. McKinley	6/7/84	Norton Basin Synthesis Meeting
Anchorage	6/11/84	Dept. of Natural Resources Staff Meeting
Anchorage	6/13/84	Bi-annual Coastal Management Conference
Anchorage	6/14/84	Dept. of Transportation and Dept. of Natural Resources Staff Meeting
Anchorage	6/22/84	Dept. of Fish and Game Staff Meeting
Nome	6/25/84	Exxon; Oil Spill Seminar
Nome	7/12/84	Reindeer Herder's Association Staff Meeting

TABLE 8-2: (continued)

PLACE	DATE	GROUP
Nome	7/13/84	ARCO; Oil Spill Seminar
Anchorage	3/14/85	Alaska Federation of Natives Marine Mammals Conference
Nome	4/8/85	Bering Straits Regional Strategy Meeting
Nome	4/15/85	Kawerak, Sitnasook, and King Island Village Corporation meetings with staff
Anchorage	9/3/85	Department of Natural Resources Staff Meeting
Montreal	9/19/85	ICC Arctic Policy Conference
Unalakleet	9/26/85	BSNC/BSCRSA Boards Workshop
Nome	10/9/85	Kawerak Board of Directors Meeting
Nome	10/24/85	Bering Straits Regional Strategy Meeting
Anchorage	10/29/85	Bi-annual Coastal Management Conference
Nome	12/13/85	Bering Straits Regional Strategy Meeting
Anchorage	12/21/85	IRA Task Force Meeting
Fairbanks	1/13/86	Inspiration Mines; quarterly review of monitoring program
Anchorage	1/27/86	Dept. of Community and Regional Affairs and Dept. of Fish and Game Staff Meeting
Fairbanks	2/20/86	Northwest Area Plan; Planning Team Meeting
Anchorage	3/20/86	Northwest Area Plan; Planning Team Meeting
Anchorage	4/18/86	Dept. of Fish and Game Staff Meeting
Gambell	4/20/86	IRA, City, Village Corporation
Anchorage	6/15/86	Bi-annual State Coastal Management Conference
Anchorage	6/25/86	Inspiration Mines; quarterly review of monitoring program
Anchorage	8/12/86	Alaska Coastal Policy Council Working Group
Nome	8/8/86	Kawerak Executive Committee

8.3 RESOURCE INFORMATION

During village public meetings, CRSA Board and staff elicited information on fish and wildlife resource distribution and use. Subsistence use of the land has been identified by village residents as the primary and highest priority use of all lands in the coastal area. The CRSA planner prepared a subsistence map showing important hunting, fishing, and food-gathering areas. The harvest information was verified at public meetings in villages throughout the region.

8.4 AGENCY MEETINGS AND DRAFT PRODUCTS REVIEW

In February 1983 the CRSA staff held a meeting in Anchorage to obtain resource information from state and federal agencies. Thereafter, additional meetings took place between CRSA staff and some state resource agencies, notably the Departments of Natural Resources, Transportation and Public Facilities, and Fish and Game.

Draft chapters of the plan were reviewed at these meetings and comments obtained. As draft chapters were written, copies were mailed to key state and federal agencies, municipalities, IRA/Traditional Councils, Bering Straits Native Corporation, the City of Nome, village corporations, Kewerak, Inc., and other interested parties. The CRSA Board reviewed their comments and incorporated pertinent recommendations into the plan chapters.

8.5 COASTAL PLAN APPROVAL

The Bering Straits CRSA Conceptually-Approved Coastal Management Plan was approved by the Alaska Coastal Policy Council on July 7, 1988. Federal approval from the Office of Ocean and Coastal Resource Management (OCRM) was received on December 1, 1988, and the Bering Straits CRSA coastal program was subsequently incorporated into the Alaska Coastal Management Program.

Bibliography

- Alaska Coastal Management Program (A.S. 4640010 *et. seq.*; 6 AAC 50010 *et. seq.*)
- Alaska Cooperative Fishery Research Unit (ACFRU). 1986. Progress report on the effects of placer mining. University of Alaska Magazine, January 1986. Fairbanks, Ak.
- Alaska Department of Fish and Game. 1977. Biophysical boundaries of Alaska's Coastal Zone.
- Alaska Department of Fish and Game. 1983. The effects of sedimentation on salmonids and macroinvertebrates — a literature review.
- Alaska Department of Fish and Game. 1983. Preliminary Norton Sound commercial salmon fisheries report.
- Alaska Department of Fish and Game (ADF&G). 1985. An atlas to the catalog of waters important for spawning, rearing, or migration of anadromous fishes: Arctic region. Habitat Div., Anchorage, Ak.
- Alaska Department of Fish and Game (ADF&G). 1986. Alaska habitat management guide, map atlas: Arctic region. Habitat Division, Anchorage, Ak.
- Alaska Department of Natural Resources. 1983. Fiscal year 1983 statewide natural resources plan.
- Alaska Department of Natural Resources. 1984. Five-year oil and gas leasing program.
- Alaska Department of Transportation and Public Facilities. no date. Long range capital improvement program for Bering Straits area.
- Alaska Geographic. 1981. Alaska National Interest Lands — the D-2 Lands. Volume 8, Number 4.
- Alaska Power Authority. 1981. Reconnaissance study of energy requirements and alternatives for Kaltag, Savoonga, White Mountain, and Elm. Holden and Associates.
- Aldridge, D., W.P. Wickert and J.R. Brett. 1958. Some effects of temporary exposure to low dissolved oxygen levels on Pacific salmon eggs. *Journal of Fisheries Research Bulletin Canada* 15(2).
- Alexander, G.R. and E.A. Hansen. 1977. The effects of sediment from a gas-oil well drilling accident on trout in creeks of the Williamsburg area, Michigan. Fisheries Research Report No. 1851, Michigan Department of Natural Resources, Fisheries Division.
- Alt, K.L. 1977. Inventory and cataloging of sport fish and sport fish waters of western Alaska. Ak. Dept. of Fish and Game.
- Arctic Environmental Information and Data Center. 1982. Mineral terrane maps. Anchorage, Ak.
- Barton, L.H. 1978. Finfish resource surveys in Norton Sound and Kotzebue Sound. In: Environmental Assessment of the Alaskan Outer Continental Shelf. Final Report. Vol. 14, NOAA/OCSEAR.
- Bellrose, F.C. 1978. Ducks, geese and swans of North America. Stackpole Books, Harrisburg, Pa. 543 pp.
- Bering Straits Native Corporation. 1962. Land and Resources.
- Bigler, B. 1983. Personal communication. Alaska Dept. Fish and Game, Commercial Fisheries Div., Kotzebue, Ak.
- Biswas, N.N., L. Gedney, and J. Agnew. 1980. Seismicity of western Alaska. Bulletin of the Seismological Society of America. Vol. 70.
- Boone, M.V. 1984. Personal communication. Bering Straits CRSA Board member, Golovin, Ak.
- Braham, H.W., M. Fraker, and B.D. Krogman. 1980. Spring migration of the Western Arctic population of bowhead whales.
- Brower, W.A., H. Serby, and J. Wise. 1977. Climatic atlas of the Outer Continental Shelf waters and coastal regions of Alaska Bering Sea.

- Burger, C. and L. Swenson. 1977. Environmental surveillance of gravel removal on the trans-Alaska pipeline system with recommendations for future gravel mining. Joint State/Federal Fish and Wildlife Advisory Team, Special Report. Number 13. Anchorage, Ak.
- Burns, J.J. 1970. Remarks on the distribution and natural history of pagophilic Pinnapoda in the Bering and Chukchi Seas. *Journal of Mammalogy*. Vol. 51, No. 3.
- Burns, J.J. 1981. Ice as marine mammal habitat in the Bering Sea. *In*: The eastern Bering Sea shelf, NOAA.
- Burns, J.J. 1981. Population status of certain marine mammals in waters adjacent to Alaska. Administrative Report. Ak. Dept. of Fish and Game, Fairbanks, Ak.
- Burns, J.J. and K.J. Frost. 1979. The natural history and ecology of the bearded seal (*Erignathus barbatus*). Outer Continental Shelf Environmental Assessment Program, Final Report, Research Unit 230.
- Burns, J.W. 1970. Spawning bed sedimentation studies in northern California streams. *Calif. Fish and Game* 56(4):253-270.
- C.G. Hawley and Associates, Inc. 1978. Mineral potential and development on St. Lawrence Island, Alaska.
- Clarke, R. McV. 1974. The effects of effluents from metal mines on aquatic ecosystems in Canada. Dept. of the Environment, Fisheries and Marine Service, Research and Development Directorate. Forty-seventh Technical Report. Winnipeg, Manitoba, Canada.
- Dames and Moore. 1978. Drilling fluid dispersion and biological effects study for the Lower Cook Inlet C.O.S.T. well. Atlantic Richfield Company. Anchorage, Ak.
- Dames and Moore. 1980. Technical Memorandum BN-4: Bering-Norton fish and wildlife impact analysis. Anchorage, Ak. U.S. Department of the Interior, Bureau of Land Management, Alaska Outer Continental Shelf Office.
- Dames and Moore. 1981. Draft Report: Assessment of the feasibility of utilization of the coal reserves of Northwestern Alaska for space heating and electricity, Phase II.
- Dames and Moore. 1983. Environmental baseline studies, Red Dog Project. Prepared for Coninco Alaska, Inc. Anchorage, Ak.
- Davis, J.L. 1978. Western Arctic caribou herd studies. Ak. Dept. Fish and Game, Game Division, Fairbanks, Ak.
- DeCicco, F. 1984. Annual performance report for inventory and cataloging of sport fish and sport fish waters of western Alaska. Alaska Dept. of Fish and Game, Sport Fish Div. Study G-I-P-A. Vol. 24. Fairbanks, Ak.
- Derksen, D.V., M.W. Waller, and W.D. Eldridge. 1979. Distributional ecology of geese molting near Teshekpuk Lake, National Petroleum Reserve - Alaska. Management and biology of Pacific flyway geese: a symposium. R.L. Jarvis and J.C. Bartonak (eds).
- Dowl Engineers. 1982. Pre-reconnaissance report, Elm hydroelectric project. Prepared for Alaska Power Authority.
- Drury, W.H. 1978. Ecological studies in the northern Bering Sea: birds of coastal habitats on the south shore of Seward Peninsula, Alaska. NOAA, OCSEAP.
- Drury, W.H. and E.B. Steele. 1977. Studies of populations, community structure, and ecology of marine birds at King Island, Bering Strait region, Alaska. Environmental Assessment of the Alaskan Outer Continental Shelf. Ann. Rep. 5:75-149.
- Drury, W.H. and C. Ramsdell. 1979. Ecological studies of birds in northern Bering Sea: seabirds at Bluff, distribution of birds at sea, movements of birds in the Bering Strait. *In*: Environmental Assessment of the Alaskan Continental Shelf, Annual Report of Principal Investigators. Vol. I, Receptors: Mammals-Birds. USDC, USDI.
- Drury, W.H., C. Ramsdell, and J.B. French, Jr. 1980. Ecological studies in the Bering Strait Region. *In*: Environmental Assessment of the Alaska Continental Shelf. Final Repts. of Principal Investigators, Vol. II, Biological Studies. NOAA/OCSEAP.
- Eisler, R. 1973. Annotated bibliography on biological effects of metals in aquatic environments. U.S. Environmental Protection Agency, Office of Research and Monitoring. Ecological Resource Series.
- Ellanna, L.J. 1980. Bering - Norton petroleum development scenarios, sociocultural systems analysis. Technical Report 54, Volume I. OCSEAP.

- Ellana, L.J. 1983. Nome: resource uses in a middle-sized regional center of northwestern Alaska. In: Wolfe, R.J. and L.J. Ellana (eds.), Resource use and socioeconomic systems: case studies of fishing and hunting in Alaskan communities. Tech. Paper No. 61, Ak. Dept. Fish and Game, Subsistence Div. Juneau, Ak.
- Elliott, G.V. and J.E. Finn. 1984. Fish use of several tributaries to the Kenai River, Alaska. U.S. Fish and Wildlife Service, Special Studies, Final Report. Anchorage, Ak.
- Engelhardt, F.R. 1977. Uptake and clearance of petroleum hydrocarbons in the ringed seal, *Phoca hispida*. Journal of the Fisheries Research Board of Canada. Vol. 34, pp. 1143-1147.
- Environmental Services Ltd. 1980. Bering Straits community profiles, a background for planning.
- Environmental Services Ltd. 1981. Nome Coastal Management Program Background Report.
- Falk, M.R. and M.J. Lawrence. 1973. Seismic exploration: nature and effects on fish. Canadian Dept. of Environment, Fisheries and Marine Service, Fisheries Operations Directorate, Central Region Technical Rpt. No. CEN/T-73-9. Winnipeg, Alberta, Canada.
- Fay, F.H. 1981. The distribution of waterfowl on St. Lawrence Island, Alaska. Annual Report. Wildlife Trust Fund. Vol. 12.
- Frost, H.J. and L.F. Lowry. 1981. Foods and trophic relationships of Cetaceans in the Bering Sea. In: The eastern Bering Sea shelf. NOAA.
- Frost, H.J. 1982. Distribution of marine mammals in the coastal zone of the Bering Sea during summer and autumn.
- Garlagher, J. 1984. Personal communication. Ak. Dept. Natural Resources, Div. of Mining, Anchorage, Ak.
- General Electric, Advanced Energy Systems. 1980. Electric power generation alternatives assessment for Nome, Alaska.
- Geraci, J.R. and D.J. St. Aubin. 1980. Study of the effects of oil on marine Mammals.
- Grauvogel, C. 1984. Personal communication. Ak. Dept. Fish and Game, Nome, Ak.
- Gusey, W.F. 1978. The fish and wildlife resources of the Norton Sound region.
- Hall, J.E. and D.D. McKay. 1983. The effects of sedimentation on salmonids and macroinvertebrates - a literature review, Alaska Dept. of Fish and Game, Habitat Division, Anchorage, Ak.
- Hill, S.H. 1978. A guide to the effects of underwater shock waves in Arctic marine mammals and fish. Inst. of Ocean Sciences, Sidney, B.C. Pac. Mar. Sci. Rep. 78-25. 50 pp.
- Hood, D.W. and J.A. Calder (eds.). 1981. The eastern Bering Sea shelf: oceanography and resources. Vol. 1. National Oceanic and Atmospheric Administration, Office of Marine Pollution Assessment. Seattle, Wa.
- Hubbs, C.L. and A.B. Rehnitzer. 1952. Report on experiments designed to determine effects of underwater explosions on fish life. California Fish and Game 38:333-366.
- Hurt, G.L., B. Burgeson, and G.A. Sanger. 1981. Feeding ecology of seabirds of the eastern Bering Sea. In: The eastern Bering Sea shelf. NOAA.
- Kaimmer, S.M., J.E. Reeves, D.R. Gunderson, G.B. Smith, and R.A. Macintosh. 1976. Baseline information from the 1975 OCSEAP survey of demersal fauna of the eastern Bering Sea.
- King, J.S. and C.P. Dew. 1980. Waterfowl and their habitats in the eastern Bering Sea. In: The eastern Bering Sea shelf, NOAA.
- Klinkhart, E.G. 1977. A fish and wildlife resource inventory of western and Arctic Alaska. Ak. Dept. of Fish and Game, Marine and Coastal Habitat Mgt, Habitat Div. Vol. 1 - Wildlife.
- Kolankiewicz, L.J. 1982. Alaska coal development: an assessment of potential water quality impact by Alaska Department of Environmental Conservation.
- Koski, K. V. 1976. The survival and fitness of two stocks of chum salmon (*Oncorhynchus keta*) from egg deposition to emergence in a controlled stream environment at Big Beef Creek. Ph.D. Dissertation. University of Washington, Seattle. 212 pp.

- LaPerriere, A.J. and P.C. Lent. 1977. Caribou feeding sites in relation to snow characteristics in northeastern Alaska.
- LaPerriere, J.D., Wagoner, S. M., and D. M. Bjorkie. 1985. Gold mining effects on heavy metals in streams, Circle quadrangle, Alaska. *Water Resources Bulletin* 21(2):245-252.
- Levy, J.S. 1963. Planning for ANCSA Section 19 villages: the challenges of 1991.
- Louis Berger and Associates, Inc. 1981. Western and Arctic Alaska transportation study. Prepared in association with Philco Engineering and Architectural Services, Inc., for the Alaska Department of Transportation and Public Facilities. Fairbanks, Ak. 8 volumes.
- Lloyd, D. S. 1983. File memorandum reporting field trip to Wainwright Mine near George River on August 17, 1983. Ak. Dept. of Fish and Game, Habitat Division. Anchorage, Ak.
- Lloyd, D.S. 1985. Turbidity in freshwater habitats of Alaska: a review of published and unpublished literature relevant to the use of turbidity as a water quality standard. Ak. Dept. of Fish and Game, Habitat Division. Rept. No. 65-1, Anchorage, Alaska.
- Lowry, L.F. et al. 1978. Trophic relationships among ice-inhabiting phocid seals. Environmental Assessment of the Alaskan Continental Shelf. Annual Reports of Principal Investigators for the Year Ending March 1978, Vol. I, Receptors: Mammals-Birds. NOAA/OSCEAP.
- Madison. 1981. Effects of placer mining on hydrologic systems in Alaska: status of knowledge.
- Magdanz, J.S. 1983. Norton Sound - Bering Strait subsistence king crab fishery update.
- Magdanz, J.S. 1983. Northern Bering Sea subsistence report.
- Malins, D.C. (ed.). 1977. Effects of petroleum on Arctic and subarctic marine environments and organisms. Vol. II. Biological effects. Academic Press, Inc. New York.
- Metsker, H. 1982. Toxicity of certain heavy metals on fish in the aquatic environment. Presented at the Placer Mining Symposium, Anchorage, Alaska, 4/9/82. U.S. Fish and Wildlife Service, Anchorage, Alaska.
- Morrow, J. 1973. Effects of crude oil and some of its components on young coho and sockeye salmon. EPA-550/3-018.
- Morrow, J. E. 1980. The freshwater fishes of Alaska. Alaska Northwest Publishing Co. 248pp.
- Murphy, S. M., B. Kessel, and L.J. Vining. 1964. Waterfowl populations and limnologic characteristics of tundra ponds. *J. Wildl. Manage.* 48(4):1156-1163.
- National Park Service. 1984. Denali National Park and Preserve draft environmental impact statement; Kantishna Hills/Dunkle Mine study. Anchorage, Ak.
- Nisbett, J.G.T. 1977. Coastal ecosystem management: a technical manual for the conservation of coastal zone resources. John Wiley and Sons. New York. 928 pp.
- Ott, A. G. 1984. File memorandum dated 4/20/84 to D. Lloyd, ADF&G, Habitat Division, Anchorage, concerning turbidity measurements downstream from active place mines. Ak. Dept. of Fish and Game, Habitat Division. Fairbanks, Ak.
- Ott, A. G. 1985. File memorandum dated 10/6/85 to B. Talbot, ADNRS, Division of Land and Water Management, Fairbanks, concerning placer mining pollution and fish populations. Ak. Dept. of Fish and Game, Habitat Division. Fairbanks, Ak.
- Pamplin, W. L., Jr. 1978. Construction-related impacts of the trans-Alaska pipeline system on terrestrial wildlife habitats. Joint State/Federal Fish and Wildlife Advisory Team, Special Rpt. No. 24. Anchorage, Ak.
- Payne, R. and D. Webb. 1971. Orientation by means of long range acoustic signaling in humpback whales. *Annals of the New York Academy of Sciences*, 188:110-142.
- Phillips, R.W., R.L. Lantz, E.W. Claire, and J.R. Moring. 1975. Some effects of gravel mixtures on emergence of coho salmon and steelhead trout fry. *Trans. Am. Fish. Soc.* 104(3):461-468.
- Pichev, K. and D. Calkins. 1978. Biology of the harbor seal in the Gulf of Alaska. Outer Continental Shelf Environmental Assessment Program Final Report. Research Unit 22B. Ak. Department of Fish and Game.

- Platts, W.B., S.B. Martin, and E.R.J. Primbs. 1979. Water quality in an Idaho stream degraded by acid mine waters. Intermountain Forest and Range Experiment Station, USDA Forest Service General Technical Report INT-67. 19pp.
- Rasmussen, B. 1967. The effects of underwater explosions on marine life. Bergen, Norway. 17 pp.
- Rey, D.J. 1984. Nineteenth century settlement and subsistence patterns in Bering Strait. *Arctic Anthropology*, Vol. 2(2).
- Rey, D.J. 1975. The Eskimos of Bering Strait: 1850-1898.
- Rice, J. and J. Karinen. 1976. Acute and chronic toxicity uptake and depuration and sublethal metabolic response of Alaskan marine organisms to petroleum hydrocarbons. *In*: Reference Paper No. 6, Bureau of Land Management, Outer Continental Shelf Office, Anchorage, Ak.
- Rice, J., J. Short, C. Broderson, T. Mecklenburg, D. Moles, C. Mlech, D. Cheatham, and J. Karinen. 1976. Acute toxicity and uptake-depuration on studies with Cook Inlet crude oil, Prudhoe Bay crude oil, no. 2 fuel oil and several subarctic marine organisms. Northern Fisheries Center, Auke Bay, Alaska.
- Schneiderhan, D. 1982. File memorandum dated 8/30/82 to R. Regnart, ADF&G Regional Supervisor, Commercial Fisheries Division, Anchorage, concerning dredge operations in the Tulukpak River. Ak. Dept. of Fish and Game, Commercial Fisheries Division, Anchorage, Ak.
- Seaman, G.A. and J.J. Burns. 1981. The distribution, natural history, and utilization of belukha whales in Alaska. Unpublished report, Ak. Dept. of Fish and Game, Anchorage, Ak.
- Selkregg, L.L. 1974. Alaska Regional Profiles: Northwest Region.
- Shaw, P.A. and J.A. Maga. 1943. The effect of mining silt on yield of fry from salmon spawning beds. *Calif. Dept. Fish and Game* 29(1):29-41.
- Silver, S.J., C.E. Warren, and F. Doudoroff. 1963. Dissolved oxygen requirement of developing steelhead trout and chinook salmon embryos at different water velocities. *Trans. Amer. Fish. Soc.* 92(4):327-343.
- Sinnott, R. 1984. Personal communication. Ak. Dept. Fish and Game, Anchorage, Ak.
- Sowls, A.L., S.A. Harch, and C.J. Lensink. 1978. Catalog of Alaskan seabird colonies.
- Springer, H. 1984. Personal communication. Ak. Dept. Transportation and Public Facilities, Nome, Ak.
- Starr, S.J., M.N. Kuwada, and L.L. Tesky. 1981. Recommendations for minimizing the impacts of hydrocarbon development on the fish, wildlife, and aquatic plant resources of the northern Bering Sea and Norton Sound. Ak. Dept. of Fish and Game, Anchorage, Ak.
- Stem, R.C. 1980. Eskimos, reindeer, and the land.
- Straty, R.R. 1981. Trans-shed movements of Pacific salmon. *In*: The eastern Bering Sea shell, NOAA.
- Sundberg, K. 1982. File memorandum dated 10/5/82 to S. Grundy, ADF&G Region II Supervisor, Habitat Division, concerning field trip to Northland Gold dredging operation on the Tulukpak River. Ak. Dept. of Fish and Game, Habitat Division, Anchorage, Ak.
- Sundberg, K. 1984. Alaska Department of Fish and Game memorandum to Dave Johnson from Dennis Kelso on the Port Moller seismic program, MELUP 84-022. March 14, 1984. Anchorage, Ak.
- Thomas, D. 1982. The role of local fish and wildlife resources in the community of Sheldovik, Alaska. Unpublished report. Ak. Dept. Fish and Game, Subsistence Div, Nome, Ak.
- Toland, D. 1983. Suspended solids in mainstem drainages from placer mines, Fairbanks and vicinity, August 3-17, 1983. Ak. Dept. of Environmental Conservation, Environmental Quality Monitoring and Laboratory Operations, Juneau, Ak.
- Townsend, A. H. 1983. File memorandum dated 2/2/83 to B. Baker, Director, ADF&G Habitat Division, Juneau, concerning effects of placer mining turbidity on sport fishing in the Chatanika River. Ak. Dept. Fish and Game, Habitat Division, Fairbanks, Ak.

- Thesky, L.L. 1975. Environmental impact of seismic exploration and blasting in the aquatic environment. Ak. Dept. of Fish and Game. Unpublished Report, Anchorage, Ak.
- Tsai, C. 1975. Effects of sewage treatment plant effluents on fish: a review of literature. Chesapeake Research Consortium, Inc., Univ. of Maryland. CRC Publ. No. 36.
- U.S. Army Corps of Engineers. 1963. Rivers and harbors in Alaska. Water Resources Comprehensive Study.
- U.S. Department of Commerce. 1979. State of Alaska, coastal management program and final environmental impact statement. State of Alaska, Office of Coastal Management.
- U.S. Department of Interior. 1975. Lost River final environmental impact statement.
- U.S. Department of Interior. 1982. Norton Sound final environmental impact statement. OCS proposed oil and gas lease sale 57.
- U.S. Department of Interior, Bureau of Land Management, Anchorage District Office. 1981. Proposed land use plan summary, Southwest Planning Area.
- U.S. Department of Interior, Bureau of Land Management, Fairbanks District Office. 1983. BLM land use plan for Northwest Planning Area, a summary.
- U.S. Geological Survey. undated. Miscellaneous field studies, maps 391, 425.
- United States Government Flight Information Publication - Alaska Supplement. 24 November 1983 to January 1984.
- Van Nieuwenhuysse, E.E., and J.D. LaPiere. 1966. Effects of placer gold mining on primary production in subarctic streams of Alaska. Water Resources Bulletin 22(1):91-98.
- Wagner, S.M. 1984. Effects of gold placer mining on stream macroinvertebrates of Interior Alaska. Master's thesis. Univ. of Alaska, Fairbanks, Ak.
- Wahrhaftig, C. 1963. Physiographic divisions of Alaska. U.S. Geological Survey, Professional Paper 482.
- Weber, P., and R. Post. 1985. Aquatic habitat assessments in mined and unmined portions of the Birch Creek watershed. Ak. Dept. of Fish and Game, Habitat Division. Technical Report No. 85-2. Juneau, Ak.
- Wells, J.G. 1975. The life of birds. W.B. Saunders Company. Philadelphia, Pa.
- Wespestad, V.G. and L.M. Barton. 1981. Distribution, migration, and status of Pacific herring. 2a: The eastern Bering Sea shelf, oceanography and resources. Vol. 1. NOAA.
- Wolfe, R.J. 1979. Food production in a western Eskimo population.
- Wolcott, R.J., Jr., T.M. Sample, and M. Morin, Jr. 1977. Demersal fish and shellfish resources of Norton Sound, the southeastern Chukchi Sea, and adjacent waters in the baseline year 1976.
- Woodby, D.A. and G.J. Divoky. 1982. Bird use of coastal habitats in Norton Sound.
- Woodby, D.A. and G.J. Divoky. 1982. Spring migration of eiders and other waterbirds at Point Barrow, Alaska. Arctic 35 (3): 403-410.
- Woodward-Clyde Consultants. 1980. Gravel removal guidelines manual for Arctic and subarctic floodplains. Report for U.S. Fish and Wildlife Service, Office of Biological Services. FWS/OBS-80/09. Washington, D.C.
- Woodward-Clyde Consultants. 1982. Geothermal energy development of Pilgrim Springs, Alaska: results of drilling, testing, and resource confirmation.
- Wright, D.C. 1962. A discussion paper on the effects of explosives on fish and marine mammals in the Northwest Territories. Canadian Tech. Rept. of Fisheries and Aquatic Science No. 1062. 16 pp.
- Zimmerman, S.T. 1982. The Norton Sound environment and possible consequences of planned oil and gas development. OCSEAP.

Appendix A: ***Waterfowl and Shorebird Distribution, Abundance, and Important Wetland Habitats in the Bering Straits CRSA***

A-I WATERFOWL AND SHOREBIRDS:

The region's wetlands (both coastal and inland freshwater) provide nesting, feeding, and staging areas for thousands of waterfowl and shorebirds. Although some waterfowl such as common eiders remain near the coast throughout the open water season, many species that serve as an important coastal subsistence resource (such as brant, greater white-fronted geese, and pintails), nest and rear their young in inland freshwater wetlands. In spring, birds are hunted as they migrate through the region, particularly when they congregate at staging areas in ice leads or ice-free river mouths and in freshwater wetlands (Orury 1976). In the fall, subsistence hunting occurs as waterfowl gather at coastal wetlands and lagoons prior to migrating south.

A major Arctic migration route for waterfowl crosses the western half of the Seward Peninsula. About 10 percent of the eastern Bering Sea swan population and at least 13 percent (6,700) of the Canada geese pass through the region, stopping to feed in inland freshwater wetlands as well as coastal wetlands. Thirty to 50 percent of all brant and about 40 percent of the Bering Sea American wigeon population also migrate through the region. The area is unusually productive for this latitude, and resting and feeding waterfowl use it extensively (Fortenberry 1974).

King eiders, which spend much of the year at sea, are the first to arrive in inland areas during the spring (April). Pacific, Steller's, and spectacled eiders which are also coastal-dependent species for much of the fall and winter, follow in mid-May. In late May tundra swans, brant, emperor geese, snow geese, and northern pintails arrive (Bellrose 1976). All of these waterfowl are considered to be coastally-dependent species based on the proportion of their life spent at sea or in coastal marshes. Although some birds move on to northern breeding areas, with the exception of snow geese, substantial numbers of each species remain in inland areas to breed.

In July emperor geese that have failed to breed move out to sea or to St. Lawrence Island (King and Dau 1980). A portion of these 10,000 to 20,000 geese that used freshwater wetlands during the spring spend the summer on the island's northern and southern coasts (Fay 1961). These geese begin their southern migration in late August. Snow geese from Wrangell Island (USSR) rest on St. Lawrence Island from mid to late September before flying to freshwater wetlands on the southwest side of the Seward Peninsula on their migration south (King and Dau 1980).

Approximately 1,000 emperor geese nest near Shishmaref Inlet in wetlands inland from the interim coastal boundary (Bellrose 1976). After using inland freshwater wetlands for breeding, Canada geese and tundra swans gather to feed along the region's protected shores, coastal and inland wetlands, and adjacent uplands (Woodby and Divoky 1982). As many as 1,000 swans have been seen on the Stebbins wetlands. At least 5,000 snow geese have been observed at Koyuk. Brant are most common in spring when thousands migrate past Koyuk and the Fish River delta (Woodby and Divoky 1982). Red-throated and Arctic loons prefer the wetlands in the northwest portion of the Bering Straits CRSA, the Imuruk Basin, and the Stebbins wetlands in the southeastern section of the district.

Thousands of dabbling ducks also nest in the Bering Straits CRSA with pintails being most abundant. In addition to nesting birds, migrating flocks of mallards, teal, shovellers, and American wigeon feed in the region's wetlands (Bellrose 1976). The CRSA has three times as many diving duck species as dabbling duck species (Volume 1, Resource Inventory). Greater scaup, considered to be a coastal dependent species, are the region's most common nesting diving ducks. They breed in freshwater wetlands both within and inland from the interim coastal boundary. In late summer greater scaup move to coastal areas, the Fish River delta on Golovin Lagoon (about

1,500 birds), and the Stebbins wetlands (1,300 birds). Oldsquaw, which spend much of the fall, winter and early spring at sea, also nest in freshwater wetlands within and inland from the interim coastal boundary. Oldsquaw are reported to molt in coastal lagoons, especially Brevig Lagoon (Woodby and Divoky 1982). Black scoters nest along rivers and in freshwater wetlands and feed along rocky coastal shorelines, particularly in the northwest part of the CRSA. During the fall and winter, large numbers of scoters and eiders are found in coastal bays and lagoons as well as offshore areas (Woodby and Divoky 1982).

A-2 IMPORTANT WETLAND HABITATS:

Woodby and Divoky (1982) conducted extensive observations along the coast of the Bering Straits CRSA from Cape Prince of Wales to the Yukon Delta. Wetlands within and inland from the interim coastal boundary were observed to support large numbers of coastally-dependent waterfowl. Following are observations from some of the more important wetlands identified.

STEBBINS — The wetlands southeast of Stebbins extending from sea level to over 1,000 feet in elevation comprise the regions largest expanse of prime waterfowl and shorebird nesting habitat and supports the CRSA's largest nesting shorebird population. In spring when the wetland is regularly flooded, large flocks of ducks and shorebirds congregate here; during August and Septembers, swans, ducks and shorebirds feed extensively in this area.

KOYUK — The wetlands south of Koyuk, extending from sea level to approximately 900 feet in elevation, provide excellent waterfowl and shorebird nesting habitat. The extensive coastal mudflats nearby attract thousands of feeding waterfowl and shorebirds prior to and following the nesting season. Brant are common in spring and swans, geese, and ducks feed and nest in these wetlands. About 20,000 birds were counted in May 1977, including approximately 5,000 snow geese and 3,000 brant.

MOSES POINT — This important feeding area is located primarily below the 200-foot contour and is heavily used by waterfowl and shorebirds in late summer, particularly at Kwiniuk Inlet and at the mouth of the Kwik River. The Moses Point spit partially shelters these wetlands.

FISH RIVER AND NIUKLUK WETLANDS — These freshwater wetlands extending from sea level to over 1,000 feet in elevation provide high quality goose, duck, and shorebird nesting habitat. During the spring brant feed and nest as far as 40 miles from the coast. In the fall, these wetlands host large flocks of migrating Canada geese. One researcher reported a fall population of more than 14,000 waterfowl in this area, comprised principally of pintails and Canada geese (Drury and Steele 1977).

IMURUK BASIN — Wetlands along this complex of lakes, rivers, and marshes ranging from sea level to nearly 2,000 feet in elevation are generally used for nesting by geese, ducks, and shorebirds. Large flocks of Canada geese pass through the area in late summer, and coastally-dependent ducks congregate throughout the basin during spring and fall migrations.

SAFETY SOUND — This area, including the Flambeau and Eldorado River wetlands and Taylor Lagoon, extends from sea level to over 1,000 feet in elevation and offers good waterfowl and shorebird nesting habitat. Many coastally-dependent ducks, geese, and shorebirds nest in the inland wetlands and feed on the mudflats at the Sound's entrance, especially during August and September.

These extremely important staging and nesting areas often support geese, ducks, and swans at densities 10 times greater than surrounding areas (Volume 1, Resource Inventory). Other important wetlands within the Bering Straits CRSA are located at Point Spencer, Shaktoolik, Stuart Island, Woolley Lagoon, Brevig Lagoon, Unalakleet, Wales (Woodby and Divoky 1982), the Kuzitrin River flats, McCarthy's Marsh, Cape Douglas, Cape Rodney, Shishmaref Inlet, Ikpek Lagoon, Lopp Lagoon, and Arctic Lagoon. Many of these wetlands extend from the coast up the river drainages to elevations in excess of 1,000 feet.

A-3 SUBSISTENCE IMPORTANCE OF WATERFOWL:

Waterfowl are an important subsistence resource for the people of the Bering Straits Region, particularly during the spring when waterfowl provide the first fresh meat of the season. In 1978 it was estimated that approximately 44,000 ducks and geese were harvested for subsistence (Klinkhart 1977). In early spring when food supplies are at their lowest, villagers hunt waterfowl in open water areas along the coast and in freshwater wetlands inland from the coast. During spring residents also gather waterfowl eggs from nesting areas. Villagers subsistence hunt in the summer along the coast, in lagoons, along rivers and in wetlands; subsistence hunting continues in the fall when migrating birds again pass through the region on their way south.

Appendix B:
Contacts for Affected Communities
within the Bering Straits CRSA

COMMUNITY	NATIVE CORPORATION	IRA COUNCIL	CITY COUNCIL
Brevig Mission	Brevig Mission Native Corporation General Delivery Brevig Mission, AK 99785 Fax: 642-4031 (School)	Brevig Mission Traditional Council General Delivery Brevig Mission, AK 99785	Brevig Mission City General Delivery Brevig Mission, AK 99785
Council	Council Native Corporation P.O. Box 2050 Nome, AK 99762	Council IRA Council P.O. Box 1235 Nome, AK 99762	
Diomedea	Inalik Native Corporation General Delivery Diomedea, AK 99762 Phone: 686-6001 (Village)	Diomedea IRA Council General Delivery Diomedea, AK 99762 Phone: 686-6001 (Village)	Diomedea City Council General Delivery Diomedea, AK 99762 Phone: 686-6001 (Village)
Elim	Elim Native Corporation P.O. Box 10 Elim, AK 99739 Phone: 890-3741 Fax: 890-3091	Elim IRA Council P.O. Box 39070 Elim, AK 99739 Phone: 890-3821	Elim City Council P.O. Box 39009 Elim, AK 99739 Phone: 890-3441
Gambell	Sinuqag, Inc. General Delivery Gambell, AK 99742 Phone: 985-5826 Fax: 985-5413 (School)	Gambell IRA Council P.O. Box 139 Gambell, AK 99742	Gambell City Council P.O. Box 189 Gambell, AK 99742 Phone: 985-5112
Golovin	Golovin Native Corporation P.O. Box 82099 Golovin, AK 99762 Phone: 779-3251 Fax: 779-3031 (School)	Golovin Traditional Council General Delivery Golovin, AK 99762	Golovin City Council P.O. Box 62059 Golovin, AK 99762 Phone: 779-3211
King Island	King Island Native Corporation P.O. Box 992 Nome, AK 99762 Phone: 443-2996	King Island IRA Council P.O. Box 337 Nome, AK 99762 Phone: 443-2111	
Koyuk	Koyuk Native Corporation P.O. Box 50 Koyuk, AK 99753 Phone: 983-3551 Fax: 983-3021 (School)	Koyuk IRA Council P.O. Box 23 Koyuk, AK 99753 Phone: 983-3551	Koyuk City Council P.O. Box 29 Koyuk, AK 99753 Phone: 983-3441
Mary's Igloo	Mary's Igloo Native Corporation P.O. Box 588 Teller, AK 99778 Phone: 642-3681	Mary's Igloo Traditional Council P.O. Box 572 Teller, AK 99778 Phone: 642-3731	
Nome	Sitnasuak Native Corporation P.O. Box 806 Nome, AK 99762 Phone: 443-5296 Fax: 443-3063	Nome Eskimo Community P.O. Box 401 Nome, AK 99762 Phone: 443-2246	Nome Common Council P.O. Box 281 Nome, AK 99762 Phone: 443-5242

Appendix B: (continued)

Savoonga	Savoonga Native Corporation P.O. Box 150 Savoonga, AK 99769 Phone: 984-6613 Fax: 984-6611 (School) Fax: 984-6427 (Store)	Savoonga IRA Council P.O. Box 129 Savoonga, AK 99769 Phone: 984-6414	Savoonga City Council P.O. Box 87 Savoonga, AK 99769 Phone: 984-6614
Shaktolik	Shaktolik Native Corporation P.O. Box 46 Shaktolik, AK 99771 Phone: 955-3241 Fax: 955-3031 (School)	Shaktolik IRA Council General Delivery Shaktolik, AK 99771	Shaktolik City Council P.O. Box 10 Shaktolik, AK 99771 Phone: 955-3441
Shishmaref	Shishmaref Native Corporation General Delivery Shishmaref, AK 99772 Phone: 649-3751 Fax: 649-3731	Shishmaref IRA Council P.O. Box 72008 Shishmaref, AK 99772 Phone: 649-3621	Shishmaref City Council General Delivery Shishmaref, AK 99772 Phone: 649-3781
Solomon	Solomon Native Corporation P.O. Box 243 Nome, AK 99762	Solomon Traditional Council P.O. Box 243 Nome, AK 99762	
St. Michael	St. Michael Native Corporation General Delivery St. Michael, AK 99659 Phone: 923-3651 Fax: 923-3142	St. Michael IRA Council General Delivery St. Michael, AK 99659 Phone: 923-3681	St. Michael City Council P.O. Box 21 St. Michael, AK 99659 Phone: 923-3211
Stebbins	Stebbins Native Corporation P.O. Box 46 Stebbins, AK 99671 Phone: 934-3281 Fax: 934-3041	Stebbins IRA Council General Delivery Stebbins, AK 99671	Stebbins City Council P.O. Box 22 Stebbins, AK 99671 Phone: 934-3451
Teller	Teller Native Corporation P.O. Box 509 Teller, AK 99778 Phone: 642-4011 Fax: 642-4014	Teller Traditional Council P.O. Box 500 Teller, AK 99778 Phone: 642-3381	Teller City Council P.O. Box 548 Teller, AK 99778 Phone: 642-3401
Unalakleet	Unalakleet Native Corporation P.O. Box 100 Unalakleet, AK 99684 Phone: 624-3411 Fax: 624-3833	Unalakleet IRA Council P.O. Box 70 Unalakleet, AK 99684 Phone: 624-3622	Unalakleet City Council P.O. Box 28 Unalakleet, AK 99684 Phone: 624-3531 Fax: 624-3130
Wales	Wales Native Corporation P.O. Box 529 Wales, AK 99783 Phone: 664-3541 Fax: 664-3641	Wales IRA Council P.O. Box 549 Wales, AK 99783 Phone: 664-3641	Wales City Council P.O. Box 489 Wales, AK 99783 Phone: 664-3671
White Mountain	White Mountain Native Corporation General Delivery White Mountain, AK 99762 Fax: 638-3031 (School)	White Mountain IRA Council General Delivery White Mountain, AK 99762 Phone: 638-3081	White Mountain City P.O. Box 66 White Mountain, AK 99762 Phone: 638-3411

Appendix C:

Locations of Potential AMSAS Within the Bering Straits CRSA

1. STUART ISLAND/KLIKITARIK - UNALAKLEET, ST. MICHAEL QUADRANGLES

T 22 S	R 19 W to R 21 W
T 23 S	R 15 W to R 19 W
T 24 S	R 16 W to R 18 W

2. PORTAGE ROADHOUSE - SOLOMON QUADRANGLE

T 11 S	R 19 W R 20 W
T 12 S	R 20 W

3. GOLOVNIN BAY - SOLOMON QUADRANGLE

T 10 S	R 22 W R 23 W
T 11 S	R 21 W R 22 W
T 12 S	R 21 W to R 23 W
T 13 S	R 21 W

4. ROCKY POINT - SOLOMON QUADRANGLE

T 10 S	R 26 W
T 11 S	R 23 W to R 26 W
T 12 S	R 23 W

5. SAFETY SOUND - SOLOMON QUADRANGLE

T 10 S	R 30 W to R 32 W
T 11 S	R 30 W to R 32 W
T 12 S	R 30 W R 32 W

6. CAPE NOME - NOME QUADRANGLE

T 12 S	R 31 W R 32 W
--------	---------------

7. NOME RIVER - NOME QUADRANGLE

T 7 S	R 33 W
T 8 S	R 32 W
T 9 S	R 33 W
T 10 S	R 33 W
T 11 S	R 33 W

8. PILGRIM/SALMON - BENDELEBEN QUADRANGLE

T 4 S	R 29 W R 30 W
T 5 S	R 29 W R 30 W
T 6 S	R 29 W R 30 W
T 7 S	R 31 W R 32 W

9. PORT CLARENCE - TELLER QUADRANGLE

T 2 S	R 35 W to R 36 W
T 3 S	R 35 W to R 39 W
T 4 S	R 32 W R 34 W R 37 W to R 39 W
T 5 S	R 34 W R 35 W

Appendix C: (continued)

10. CAPE PRINCE OF WALES - TELLER AND SHESHMAREF QUADRANGLES

T 2 N	R 45 W
T 3 N	R 45 W
T 4 N	R 44 W R 45 W
T 5 N	R 41 W to R 43 W
T 6 N	R 40 W R 41 W
T 7 N	R 39 W R 40 W
T 8 N	R 37 W R 38 W
T 9 N	R 35 W to R 37 W
T 10 N	R 34 W R 35 W
T 11 N	R 32 W R 33 W
T 12 N	R 30 W to R 32 W
T 13 N	R 25 W to R 29 W

11. ST. LAWRENCE ISLAND - ST. LAWRENCE ISLAND QUADRANGLE

T 20 S	R 67 W
T 21 S	R 60 W to R 68 W
T 22 S	R 59 W to R 68 W
T 23 S	R 59 W to R 68 W
T 24 S	R 57 W to R 68 W
T 25 S	R 53 W to R 62 W R 68 W to R 68 W
T 26 S	R 53 W to R 61 W
T 27 S	R 54 W to R 60 W
T 28 S	R 57 W R 58 W
T 29 S	R 59 W R 59 W

12. SOLOMON RIVER - SOLOMON QUADRANGLE

T 9 S	R 28 W to R 29 W
T 10 S	R 28 W to R 29 W
T 11 S	R 29 W to R 29 W